Service Manual

Model : KS10

LG

Internal Use Only

Service Manual

KS10

Date: July, 2007 / Issue 1.0

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1. INTRODUCTION

1.1 Purpose

This manual provides the information necessary to repair, calibration, description and download the features of this model.

1.2 Regulatory Information

A. Security

Toll fraud, the unauthorized use of telecommunications system by an unauthorized part (for example, persons other than your company's employees, agents, subcontractors, or person working on your company's behalf) can result in substantial additional charges for your telecommunications services. System users are responsible for the security of own system.
There are may be risks of toll fraud associated with your telecommunications system. System users are responsible for programming and configuring the equipment to prevent unauthorized use. The manufacturer does not warrant that this product is immune from the above case but will prevent unauthorized use of commoncarrier telecommunication service of facilities accessed through or connected to it. The manufacturer will not be responsible for any charges that result from such unauthorized use.

B. Incidence of Harm

If a telephone company determines that the equipment provided to customer is faulty and possibly causing harm or interruption in service to the telephone network, it should disconnect telephone service until repair can be done. A telephone company may temporarily disconnect service as long as repair is not done.

C. Changes in Service

A local telephone company may make changes in its communications facilities or procedure. If these changes could reasonably be expected to affect the use of the phones or compatibility with the net work, the telephone company is required to give advanced written notice to the user, allowing the user to take appropriate steps to maintain telephone service.

D. Maintenance Limitations

Maintenance limitations on the phones must be performed only by the manufacturer or its authorized agent. The user may not make any changes and/or repairs expect as specifically noted in this manual. Therefore, note that unauthorized alternations or repair may affect the regulatory status of the system and may void any remaining warranty.

E. Notice of Radiated Emissions

This model complies with rules regarding radiation and radio frequency emission as defined by local regulatory agencies. In accordance with these agencies, you may be required to provide information such as the following to the end user.

F. Pictures

The pictures in this manual are for illustrative purposes only; your actual hardware may look slightly different.

G. Interference and Attenuation

A phone may interfere with sensitive laboratory equipment, medical equipment, etc. Interference from unsuppressed engines or electric motors may cause problems.

H. Electrostatic Sensitive Devices

ATTENTION

Boards, which contain Electrostatic Sensitive Device (ESD), are indicated by the  sign.
Following information is ESD handling:

- Service personnel should ground themselves by using a wrist strap when exchange system boards.
- When repairs are made to a system board, they should spread the floor with anti-static mat which is also grounded.
- Use a suitable, grounded soldering iron.
- Keep sensitive parts in these protective packages until these are used.
- When returning system boards or parts like EEPROM to the factory, use the protective package as described.

2. PERFORMANCE

2.1 System Overview

Item	Specification
Shape	GSM900/1800/1900 and WCDMA Slide Handset
Size	104 X 52 X 18.9 mm
Weight	118 g (with 950mAh Battery)
Power	3.7V normal, 950 mAh Li-Polymer
Talk Time (with 950mAh)	Over 150 min (WCDMA, Tx=12 dBm, Voice) Over 175 min (GSM, Tx=Max, Voice)
Standby Time (with 950mAh)	Over 200 Hrs (WCDMA, DRX=1.28) Over 220 Hrs (GSM, Paging period=9)
Antenna	Internal type and Antenna
LCD	Main 240 X 320 pixel TFT (QVGA LCD Module)
LCD Backlight	Blue LED Back Light (main only)
Camera	Dual Camera ; 1.3 Mega pixel (CMOS), VGA Camera (CMOS)
Vibrator	Yes (Cylinder Type)
LED Indicator	No
MIC	Yes
Receiver	Yes
Earphone Jack	Yes
Connectivity	Bluetooth, USB
Volume Key	Push Type(+, -)
External Memory	Micro-SD
I/O Connect	18 Pin

2.2 Usable environment

1) Environment

Item	Specification
Voltage	3.7 V(Typ), [Shut Down : 3.22 V]
Operation Temp	-20 ~ +60°C
Storage Temp	-20 ~ +70°C
Humidity	85 % (Max)

2) Environment (Accessory)

Reference	Spec.	Min	Typ.	Max	Unit
TA Power	Available power	100	220	240	Vac

* CLA : 12 ~ 24 V(DC)

2.3 Radio Performance

1) Transmitter - GSM Mode

No	Item		GSM		DCS & PCS	
1	Conducted Spurious Emission	MS allocated Channel	100k~1GHz	-39dBm	9k ~ 1GHz	-39dBm
					1G~[A]MHz	-33dBm
			1G~12.75GHz	-33dBm	[A]M~[B]MHz	-39dBm
					[B]M~12.75GHz	-33dBm
		Idle Mode	100k~880MHz	-60dBm	100k~880MHz	-60dBm
			880M~915MHz	-62dBm	880M~915MHz	-62dBm
			915M~1GHz	-60dBm	915M~1GHz	-60dBm
			1G~[A]MHz	-50dBm	1G~[A]MHz	-50dBm
			[A]M~[B]MHz	-56dBm	[A]M~[B]MHz	-56dBm
			[B]M~12.5GHz	-50dBm	[B]M~12.5GHz	-50dBm

* In case of DCS : [A] -> 1710, [B] -> 1785

* In case of PCS : [A] -> 1850, [B] -> 1910

No	Item		GSM		DCS & PCS	
2	Radiated Spurious Emission	MS allocated Channel	30M ~ 1GHz	-36dBm	30M~1GHz	-36dBm
					1G~[A]MHz	-30dBm
			1G ~ 4GHz	-30dBm	[A]M~[B]MHz	-36dBm
					[B]M~4GHz	-30dBm
		Idle Mode	30M ~ 880MHz	-57dBm	30M~880MHz	-57dBm
			880M ~ 915MHz	-59dBm	880M~915MHz	-59dBm
			915M~1GHz	-57dBm	915M~1GHz	-57dBm
			1G~[A]MHz	-47dBm	1G~[A]MHz	-47dBm
			[A]M~[B]MHz	-53dBm	[A]M~[B]MHz	-53dBm
			[B]M~4GHz	-47dBm	[B]M~4GHz	-47dBm
3	Frequency Error		±0.1ppm		±0.1ppm	
4	Phase Error		±5(RMS)		±5(RMS)	
			±20(PEAK)		±20(PEAK)	
5	Frequency Error Under Multipath and Interference Condition		3dB below reference sensitivity		3dB below reference sensitivity	
			RA250 : ±200Hz		RA250: ±250Hz	
			HT100 : ±100Hz		HT100: ±250Hz	
			TU50 : ±100Hz		TU50: ±150Hz	
			TU3 : ±150Hz		TU1.5: ±200Hz	
6	Output RF Spectrum	Due to modulation	0 ~ 100kHz	+0.5dB	0 ~ 100kHz	+0.5dB
			200kHz	-30dB	200kHz	-30dB
			250kHz	-33dB	250kHz	-33dB
			400kHz	-60dB	400kHz	-60dB
			600 ~ 1800kHz	-60dB	600 ~ 1800kHz	-60dB
			1800 ~ 3000kHz	-63dB	1800 ~ 6000kHz	-65dB
			3000 ~ 6000kHz	-65dB	≥6000kHz	-73dB
			≥6000kHz	-71dB		
		Due to Switching transient	400kHz	-19dB	400kHz	-22dB
			600kHz	-21dB	600kHz	-24dB
			1200kHz	-21dB	1200kHz	-24dB
			1800kHz	-24dB	1800kHz	-27dB

*** In case of DCS : [A] -> 1710, [B] -> 1785** *** In case of PCS : [A] -> 1850, [B] -> 1910**

2. PERFORMANCE

No	Item	GSM			DCS & PCS		
7	Intermodulation attenuation		–		Frequency offset		800kHz
					Intermodulation product should be Less than 55dB below the level of Wanted signal		
8	Transmitter Output Power	Power control Level	Power (dBm)	Tolerance (dB)	Power control Level	Power (dBm)	Tolerance (dB)
		5	33	±3	0	30	±3
		6	31	±3	1	28	±3
		7	29	±3	2	26	±3
		8	27	±3	3	24	±3
		9	25	±3	4	22	±3
		10	23	±3	5	20	±3
		11	21	±3	6	18	±3
		12	19	±3	7	16	±3
		13	17	±3	8	14	±3
		14	15	±3	9	12	±4
		15	13	±3	10	10	±4
		16	11	±5	11	8	±4
		17	9	±5	12	6	±4
		18	7	±5	13	4	±4
		19	5	±5	14	2	±5
					15	0	±5
9	Burst timing	Mask IN			Mask IN		

2) Transmitter - WCDMA Mode

No	Item	Specification
1	Maximum Output Power	Class 3 : +24dBm(+1/-3dB) Class 4 : +21dBm(±2dB)
2	Frequency Error	±0.1ppm
3	Open Loop Power control in uplink	±9dB@normal, ±12dB@extreme
4	Inner Loop Power control in uplink	Adjust output(TPC command)
		cmd 1dB 2dB 3dB
		+1 +0.5/1.5 +1/3 +1.5/4.5
		0 -0.5/+0.5 -0.5/+0.5 -0.5/+0.5
		-1 -0.5/-1.5 -1/-3 -1.5/-4.5
		Group (10 equel command group)
		+1 +8/+12 +16/+24
5	Minimum Output Power	-50dBm(3.84MHz)
6	Out-of-synchronization handling of output power	Qin/Qout : PCCH quality levels Toff@DPCCH/Ior : -22 -> -28dB Ton@DPCCH/Ior : -24 -> -18dB
7	Transmit OFF Power	-56dBm(3.84MHz)
8	Transmit ON/OFF Time Mask	±25us PRACH,CPCH,uplinlk compressed mode
9	Change of TFC	±25us Power varies according to the data rate DTX : DPCH off (minimize interference between UE)
10	Power setting in uplink compressed	±3dB(after 14slots transmission gap)
11	Occupied Bandwidth(OBW)	5MHz(99%)
12	Spectrum emission Mask	-35-15*(Δf-2.5)dBc@Δf=2.5~3.5MHz,30k -35-1*(Δf-3.5)dBc@Δf=3.5~7.5MHz,1M -39-10*(Δf-7.5)dBc@Δf=7.5~8.5MHz,1M -49dBc@Δf=8.5~12.5MHz,1M

No	Item	Specification
13	Adjacent Channel Leakage Ratio(ACLR)	33dB@5MHz, ACP>-50dBm 43dB@10MHz, ACP>-50dBm
14	Spurious Emissions (*: additional requirement)	-36dBm@f=9~150KHz, 1K BW -36dBm@f=50KHz~30MHz, 10K BW -36dBm@f=30MHz~1000MHz, 100K BW -30dBm@f=1~12.5GHz, 1M BW (*)-41dBm@f=1893.5~1919.6MHz, 300K (*)-67dBm@f=925~935MHz, 100K BW (*)-79dBm@f=935~960MHz, 100K BW (*)-71dBm@f=1805~1880MHz, 100K BW
15	Transmit Intermodulation	-31dBc@5MHz,Interferer -40dBc -41dBc@10MHz, Interferer -40dBc
16	Error Vector Magnitude (EVM)	17.5%(>-20dBm) (@12.2K, 1DPDCH+1DPCCH)
17	Transmit OFF Power	-15dB@SF=4.768Kbps, Multi-code transmission

3)Receiver - GSM Mode

No	Item		GSM	DCS & PCS
1	Sensitivity (TCH/FS Class II)		-105dBm	-105dBm
2	Co-Channel Rejection (TCH/FS Class II, RBER, TU high/FH)		C/Ic=7dB	Storage -30 ~ +85
3	Adjacent Channel Rejection	200kHz	C/Ia1=-12dB	C/Ia1=-12dB
		400kHz	C/Ia2=-44dB	C/Ia2=-44dB
4	Intermodulation Rejection		Wanted Signal :-98dBm 1st interferer:-44dBm 2nd interferer:-45dBm	Wanted Signal :-96dBm 1st interferer:-44dBm 2nd interferer:-44dBm
5	Blocking Response (TCH/FS Class II, RBER)		Wanted Signal :-101dBm Unwanted : Depend on Frequency	Wanted Signal :-101dBm Unwanted : Depend on Frequency

4) Receiver - WCDMA Mode

No	Item	Specification
1	Reference Sensitivity Level	-106.7 dBm(3.84 MHz)
2	Maximum Input Level	-25dBm(3.84MHz) -44dBm/3.84MHz(DPCH_Ec) UE@+20dBm output power(Class3)
3	Adjacent Channel Selectivity (ACS)	33dB UE@+20dBm output power(Class3)
4	In-band Blocking	-56dBm/3.84MHz@10MHz UE@+20dBm output power(Class3)
		-44dBm/3.84MHz@15MHz UE@+20dBm output power(Class3)
5	Out-band Blocking	-44dBm/3.84MHz@f=2050~2095 and 2185~2230MHz UE@+20dBm output power(Class3)
		-30dBm/3.84MHz@f=2025~2050 and 2230~2255MHz UE@+20dBm output power(Class3)
		-15dBm/3.84MHz@f=1~2025 and 2255~12500MHz UE@+20dBm output power(Class3)
6	Spurious Response	-44dBm CW UE@+20dBm output power(Class3)
7	Intermodulation Characteristic	-46dBm CW@10MHz -46dBm/3.84MHz@20MHz UE@+20dBm output power(Class3)
8	Spurious Emissions	-57dBm@f=9KHz~1GHz, 100K BW -47dBm@f=1~12.5GHz, 1M BW -60dBm@f=1920MHz~1980MHz, 3.84M BW -60dBm@f=2110MHz~2170MHz, 3.84M BW

2.4 Current Consumption

	Stand by	Voice Call	VT
WCDMA	Under 4.32 mA (DRX=1.28)	Under 335 mA (Tx=10dBm -Low power)	Under 569mA (Tx=10dBm -Low power)
GSM	Under 4.32 mA (Paging=5period)	Under 380 mA (Tx=Max power)	

(Stand by Test Condition : Bluetooth off, LCD backlight off)
(Call Test Condition : Bluetooth off, LCD backlight dimming mode)
(VT Test Condition : Speaker off, LCD backlight On)

2.5 RSSI BAR

Level Change	WCDMA	GSM
BAR 7 → 6	-86 ± 2 dBm	-82 ± 2dBm
BAR 6 → 5	-90 ± 2 dBm	-86 ± 2dBm
BAR 5 → 4	-94 ± 2 dBm	-90 ± 2dBm
BAR 4 → 3	-98 ± 2 dBm	-94 ± 2dBm
BAR 3 → 2	-102 ± 2 dBm	-98 ± 2dBm
BAR 2 → 1	-106 ± 2 dBm	-102 ± 2dBm
BAR 1 → 0	-110 ± 2 dBm	-106 ± 2dBm

2.6 Battery BAR

Indication	Standby
Bar 7	3.96 ± 0.05V
Bar 7 → 6	3.95 ± 0.05V
Bar 6 → 5	3.86 ± 0.05V
Bar 5 → 4	3.78 ± 0.05V
Bar 4 → 3	3.74 ± 0.05V
Bar 3 → 2	3.69 ± 0.05V
Bar 2 → 1	3.63 ± 0.05V
Bar 1 → Empty	3.50 ± 0.05V
Low Voltage, Warning message + tone	3.63,3.50 ± 0.05V (Stand-by) / 3.63, 3.50 ± 0.05V (Talk) Bar 2 → 1 / Bar 1 → Empty
Power Off	3.20 ± 0.05V

2.7 Sound Pressure Level

No	Test Item		Specification	
1	Sending Loudness Rating (SLR)	MS	8 ±3 dB	
2	Receiving Loudness Rating (RLR)		Nor	-4 ± 3 dB
			Max	-15 ± 3 dB
3	Side Tone Masking Rating (STMR)		Min	17 dB
4	Echo Loss (EL)		Min	40 dB
5	Sending Distortion (SD)		Refer to Table 30.3	
6	Receiving Distortion (RD)		Refer to Table 30.4	
7	Idle Noise-Sending (INS)		Max	-64 dBm0p
8	Idle Noise-Receiving (INR)		Nor	Under -47 dBPA
			Max	Under -36 dBPA
9	Sending Loudness Rating (SLR)	Headset	8±3dB	
10	Receiving Loudness Rating (RLR)		Nor	-1 ±3 dB
			Max	-12 ±3 dB
11	Side Tone Masking Rating (STMR)		Min	25 dB
12	Echo Loss (EL)		Min	40 dB
13	Sending Distortion (SD)		Refer to Table 30.3	
14	Receiving Distortion (RD)		Refer to Table 30.4	
15	Idle Noise-Sending (INS)		Max	-55 dBm0p
16	Idle Noise-Receiving (INR)		Nor	Under -45 dBPA
			Max	Under -40 dBPA
17	TDMA Noise -. GSM : Power Level : 5 DCS/PCS : Power Level : 0 (Cell Power : -90 ~ -105 dBm) -. Acoustic (Max Vol.) MS/Headset SLR : 8 ± 3dB MS/Headset RLR : -15 ± 3dB/-12dB (SLR/RLR : Mid-value setting)	MS and Headset	Max	Under -62 dBm

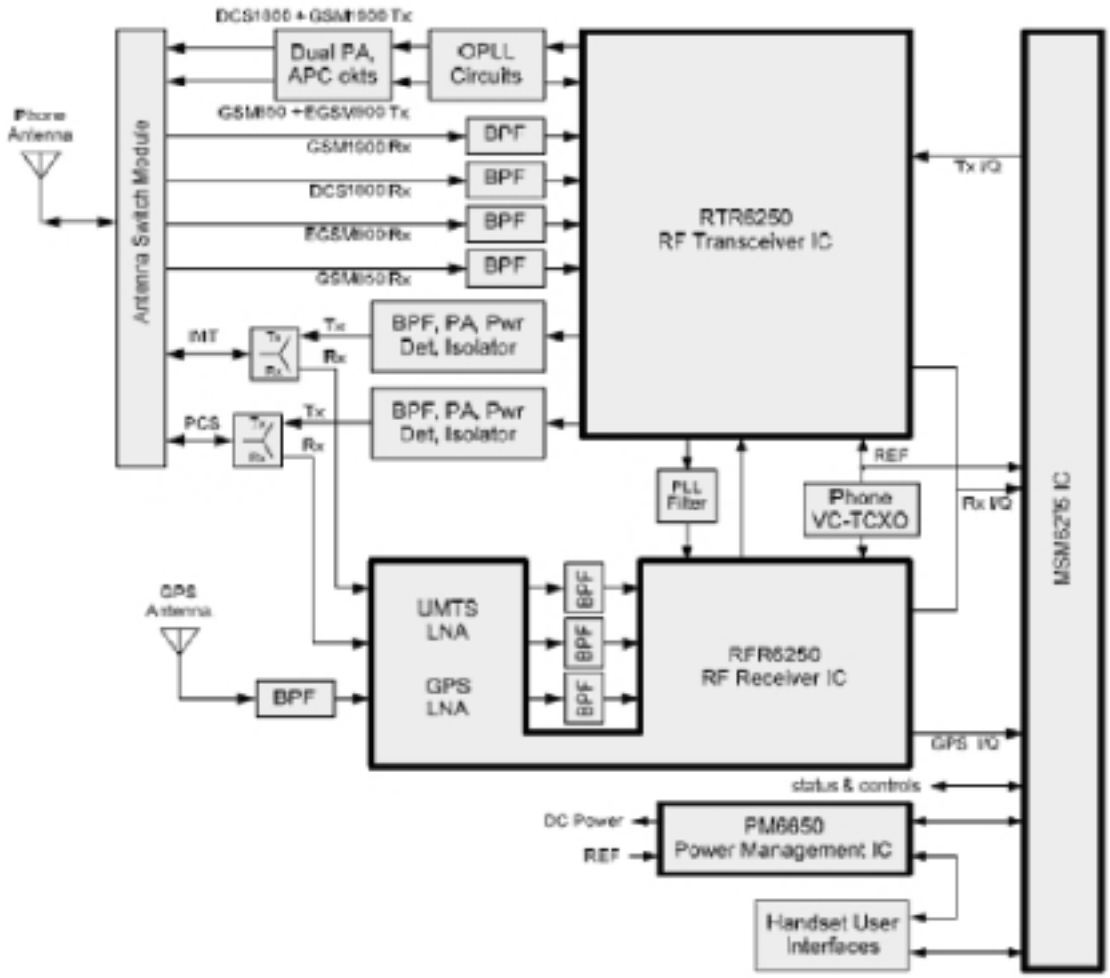
2.8 Charging

- Charging Method : CC & CV (Constant Current & Constant Voltage)
- Maximum Charging Voltage : 4.2V
- Maximum Charging Current : 650mA
- Nominal Battery Capacity : 950 mAh
- Charger Voltage : 4.8V
- Charging time : Max 3 h (Except time trickle charging)
- Full charge indication current (icon stop current) : 60mA
- Low battery POP UP : 3.48V
- Low battery alarm interval : Idle - 3 min, Dedicated - 1min
- Cut-off voltage : 3.22V

3. TECHNICAL BRIEF

3.1 General Description

The KS10 supports UMTS-2100 DS-WCDMA, EGSM-900, DCS-1800, and PCS-1900. All receivers and the UMTS transmitter use the radio One[1]Zero-IF architecture to eliminate intermediate frequencies, directly converting signals between RF and baseband. The EGSM, DCS1800 and PCS1900 transmitters use a baseband-to-IF up-conversion followed by an offset phase-locked loop that translates the GMSK-modulated signal to RF.



KS10 high-level RF functional block diagram

[1] QUALCOMM's branded chipset that implements a Zero-IF radio architecture.

3. TECHNICAL BRIEF

A generic, high-level functional block diagram of KS10 is shown in Figure 1-1. One antenna collects base station forward link signals and radiates handset reverse link signals. The antenna connects with receive and transmit paths through a switch module (plus a duplexer for UMTS-2100 operation).

UMTS band signals at the antenna are switched to the relevant UMTS duplexer. The UMTS receive band signals are amplified by the front-end LNAs of the RFR6250 IC before passing through a band-pass filter and being applied to the mixer inputs of the RFR6250 IC. On-chip circuits down-convert the received signal directly from RF to baseband using radioOne Zero-IF techniques. Generation and distribution of the UMTS LO, for the down-converter, is performed entirely on-chip (except for the loop filter). The RFR6250 IC outputs analog baseband signals for processing by the MSM device. This baseband interface is shared with the RTR6250 GSM receiver outputs, but is separate from the GPS baseband interface.

EGSM, DCS and PCS receive signals from the antenna switch module pass through their band-pass filters, then are applied to the RTR6250 IC. In a similar fashion to the UMTS paths, RTR6250 IC circuits down-convert the received signals directly from RF to baseband. The GSM LO for multiband down conversion is entirely generated within the RTR6250 IC (PLL and distribution functions) with exception of the off-chip loop filter. The RTR analog baseband outputs are routed to the MSM6275 IC for further processing (an interface shared with the RFR UMTS receive paths).

The UMTS transmit path begins with analog baseband signals from the MSM device that drive the RTR6250 IC. Integrated PLL and VCO circuits generate the Tx LO used in the quadrature upconverter that translates baseband signals directly to RF. The RTR6250 output driver stages deliver fairly high-level signals that are filtered and applied to the power amplifiers (PA). The PA output is routed to the antenna through a duplexer and switch module.

The shared EGSM-900, DCS-1800, and PCS-1900 transmit path begins with the same baseband interface from the MSM6275 IC that is used for the UMTS band. A single EGSM/DCS/PCS quadrature upconverter translates the GMSK-modulated signal to a convenient intermediate frequency (IF) that forms one input to an offset phase-locked loop (OPLL). OPLL functions are split between the RTR6250 IC and off-chip loop filter and dual Tx VCO circuits, and translate the GMSK-modulated signal to the desired EGSM-900, DCS-1800 or PCS-1900 channel frequency. This signal is applied to a dual power amplifier (only one is active at a time). The enabled path continues with the PA, an automated power control (APC) circuit that samples the transmit power and adjusts its level, the switch module (which includes a band-appropriate lowpass filter), and the antenna.

KS10 power supply voltages are managed and regulated by the PM6250 Power Management IC. This versatile device integrates all wireless handset power management, general housekeeping, and user interface support functions into a single mixed signal IC. It monitors and controls the external power source and coordinates battery recharging while maintaining the handset supply voltages using low dropout, programmable regulators.

The device's general housekeeping functions include an ADC and analog multiplexer circuit for monitoring on-chip voltage sources, charging status, and current flow, as well as userdefined off-chip variables such as temperature, RF output power, and battery ID. Various oscillator, clock, and counter circuits support IC and higher-level handset functions. Key parameters such as under-voltage lockout and crystal oscillator signal presence are monitored to protect against detrimental conditions.

3.2 GSM Mode

3.2.1 GSM Receiver

The Dual-mode KS10's receiver functions are split between the two RFICs as follows:

- UMTS-2100 operation uses the RFR6250 Receiver ICs to implement the receive signal path, accepting an RF input and delivering analog baseband outputs (I and Q).
- EGSM-900, DCS-1800, and PCS-1900 modes both use the RTR6250 IC only. Each mode has independent front-end circuits and down-converters, but they share common baseband circuits (with only one mode active at a time). All receiver control functions are beginning with SBI[2]-controlled parameters.

The EGSM, DCS, and PCS receiver inputs of RTR6250 are connected directly to the transceiver front-end circuits(filters and antenna switch module). EGSM, DCS, and PCS receiver inputs are similar to the RFR6250 UMTS Rx input in that they also use differential configurations to improve common-mode rejection and second-order non-linearity performance.

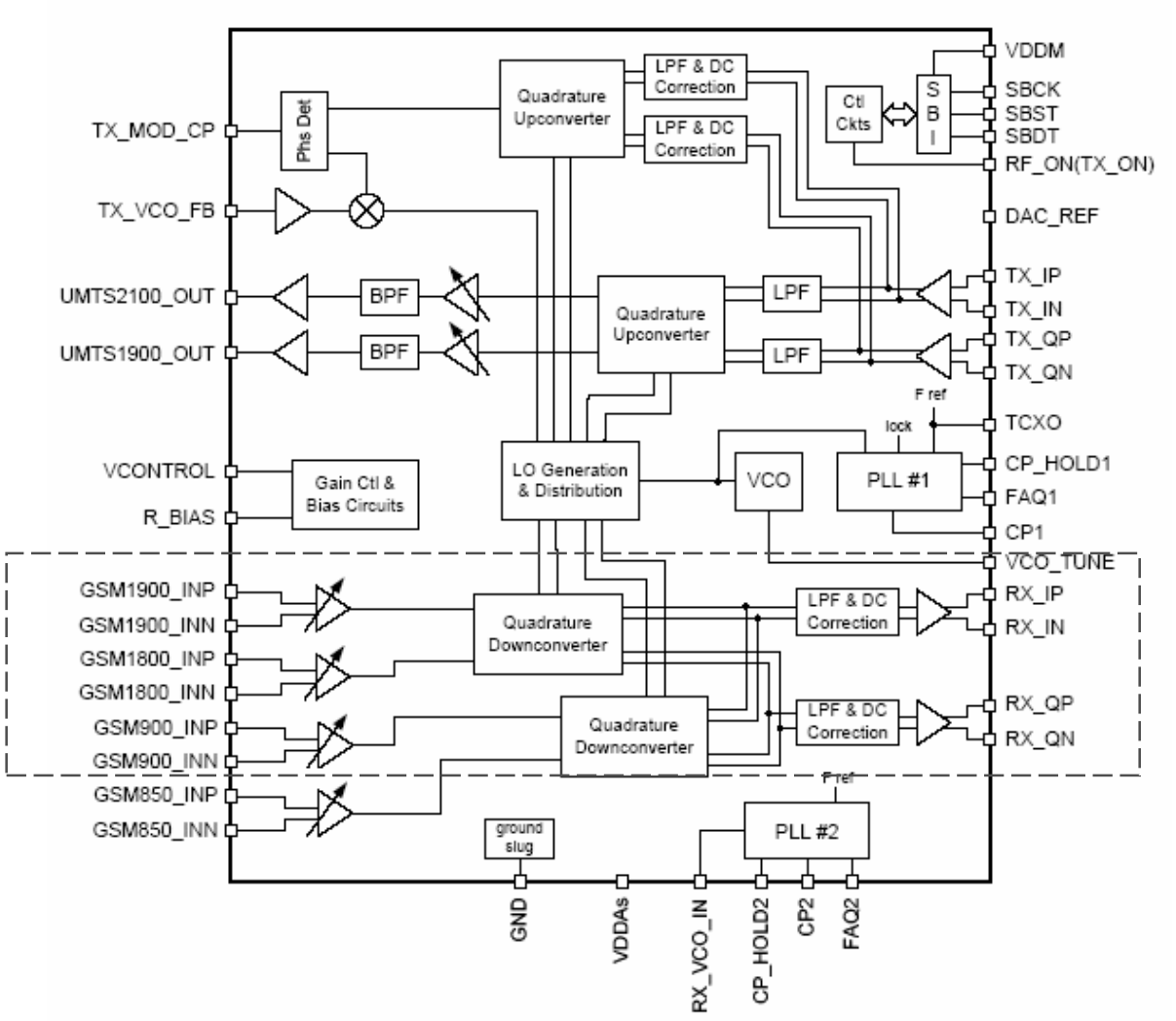
The balance between the complementary signals is critical and must be maintained from the RF filter outputs all the way into the IC pins Since EGSM, DCS, and PCS signals are time-division duplex (the handset can only receive or transmit at one time), switches are used to separate Rx and Tx signals in place of frequency duplexers - this is accomplished in the switch module.

The EGSM, DCS, and PCS receive signals are routed to the RTR6250 through band selection filters and matching networks that transform single-ended 50-Ω sources to differential impedances optimized for gain and noise figure. Similar to the RFR, the RTR input uses a differential configuration to improve second-order inter-modulation and common mode rejection performance. The RTR6250 input stages include MSM-controlled gain adjustments that maximize receiver dynamic range.

The amplifier outputs drive the RF ports of the quadrature RF-to-baseband downconverters.
The downconverted baseband outputs are multiplexed and routed to lowpass filters (one I and one Q) having passband and stopband characteristics suitable for GMSK processing. These filter circuits include DC offset corrections. The filter outputs are buffered and passed on to the MSM6275 IC for further processing (an interface shared with the RFR6250 UMTS receiver outputs).

[2] The RFIC operating modes and circuit parameters are MSM-controlled through the proprietary 3-line Serial Bus Interface (SBI). The Application Programming Interface (API) is used to implement SBI commands. The API is documented in AMSS Software - please see applicable AMSS Software documentation for details.

3. TECHNICAL BRIEF



3.2.2 GSM Transmitter

The shared GSM Low-band (EGSM900) and High-band (DCS1800, PCS1900) transmit path begins with the baseband inputs from the MSM6275 IC. These differential analog input signals are buffered, lowpass filtered, corrected for DC offsets then applied to the GSM quadrature upconverter. The upconverter LO signals are generated from the transceiver VCO signal by the LO distribution and generation circuits within RTR6250. This upconverter translates the GMSK-modulated signal to a convenient intermediate frequency (IF) that forms one input to a frequency/phase detector circuit. This IF signal is the reference input to an offset phase-locked loop (OPLL) circuit as shown in Figure 1.2.2-1.

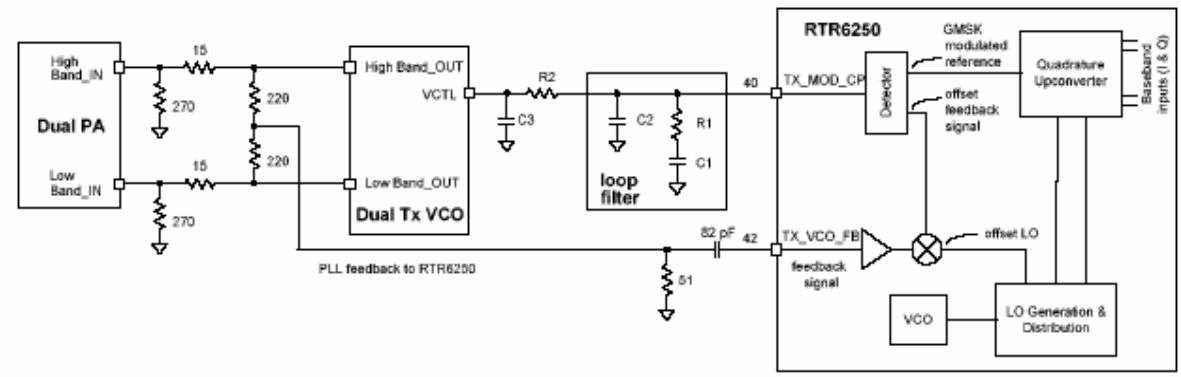


Figure 1.2.2-1 Offset phase-locked loop interfaces

The feedback path of this OPLL circuit includes a downconversion from the RF output frequency range to the IF range. The two inputs to this downconversion mixer are formed as follows:

1. The dual Tx VCO output (operating in the desired RF output frequency range) is buffered within the RTR6250 IC then applied to the mixer RF port.
2. The LO Generation and Distribution circuits that deliver the transmit path.s LO for the baseband-to-IF upconversion also provides the offset LO signal that is applied to the feedback path.s mixer LO port.

The mixer IF port output is the offset feedback signal - the variable input to the frequency/phase detector circuit. The detector compares its variable input to its reference input and generates an error signal that is lowpass filtered by the loop filter and applied to the dual Tx VCO tuning port to force the VCO output in the direction that minimizes errors. As mentioned earlier, the VCO output is connected to the feedback path thereby creating a closed-loop control system that will force frequency and phase errors between the variable and reference inputs to zero.

The waveform at the dual Tx VCO output is the GMSK-modulated signal centered at the desired GSM channel frequency. A phase-locked loop circuit is used to translate the GMSKmodulated signal from IF to RF primarily for two reasons:

1. Phase-locked loops provide a lowpass filter function from the reference input to the VCO output. These results in a bandpass function centered at the desired channel frequency that provides steep, well-controlled rejection of the out-of-band spectrum.
2. The resulting output bandpass function is virtually unchanged as the transmitter is tuned over channels spanning the GSM operating band.

The PA is a key component in any transmitter chain and must complement the rest of the transmitter precisely. For GSM band operation, the closed-loop transmit power control functions add even more requirements relative to the UMTS PA. In addition to gain control and switching requirements, the usual RF parameters such as gain, output power level, several output spectrum requirements, and power supply current are critical. The gain must be sufficient and variable to deliver the desired transmitter output power given the VCO output level, the subsequent passive devices' losses, and the control set point. The maximum and minimum transmitter output power levels depend upon the operating band class and mobile station class per the applicable standard. Transmitter timing requirements and in-band and out-of-band emissions, all dominated by the PA, are also specified by the applicable standard.

The active dual Tx VCO output is applied to the dual power amplifier to continue the transmit path, and feedback to the RTR6250 IC to complete the frequency control loop. The PA operating band (EGSM or DCS/PCS) is selected by the MSM device GPIO control. (GSM_PA_BAND).

3.3 WCDMA Mode

3.3.1 Receiver

The UMTS duplexer receiver output is routed to LNA circuits within the RFR6250 IC. The LNA gain is dynamically controlled by the MSM6275 IC to cover full receiver dynamic range and to save current consumption.
The UMTS LNA output is routed to the down conversion mixer inputs, in the RFR6250 IC, through a band selection filter that transforms a single-ended 50-Ω source to differential 100-Ω load impedance that is matched to the RFR6250 IC. The RFR input uses a differential configuration to improve second-order inter-modulation and common mode rejection performance. The RFR6250 IC input stages include MSM-controlled gain adjustments that further extend receiver dynamic range.

The amplifier output drives the RF port of the quadrature RF-to-baseband down-converter. The down-converted baseband outputs are routed to low-pass filters (one I and one Q) having pass-band and stop-band characteristics suitable for DS-WCDMA processing. The filter outputs are buffered and passed on to the MSM6275 IC for further processing. This baseband interface is shared with the RTR6250 GSM receiver outputs.

The RFR6250 IC includes LO generation and distribution circuitry to reduce off-chip component requirements. The GPS RX LO source is created using the PLL control elements of the RTR6250 PLL2, via a discrete loop filter components, in tandem with the VCO in the RFR6250. Using only this PLL signal, the RFR6250 LO generation and distribution circuits create the necessary LO signals for the UMTS quadrature down-converter. By definition, the ZIF down-converter requires F_{LO} equal to F_{RF}, and the RTR6250/RFR6250 design achieves this without allowing F_{VCO} to equal F_{RF}.

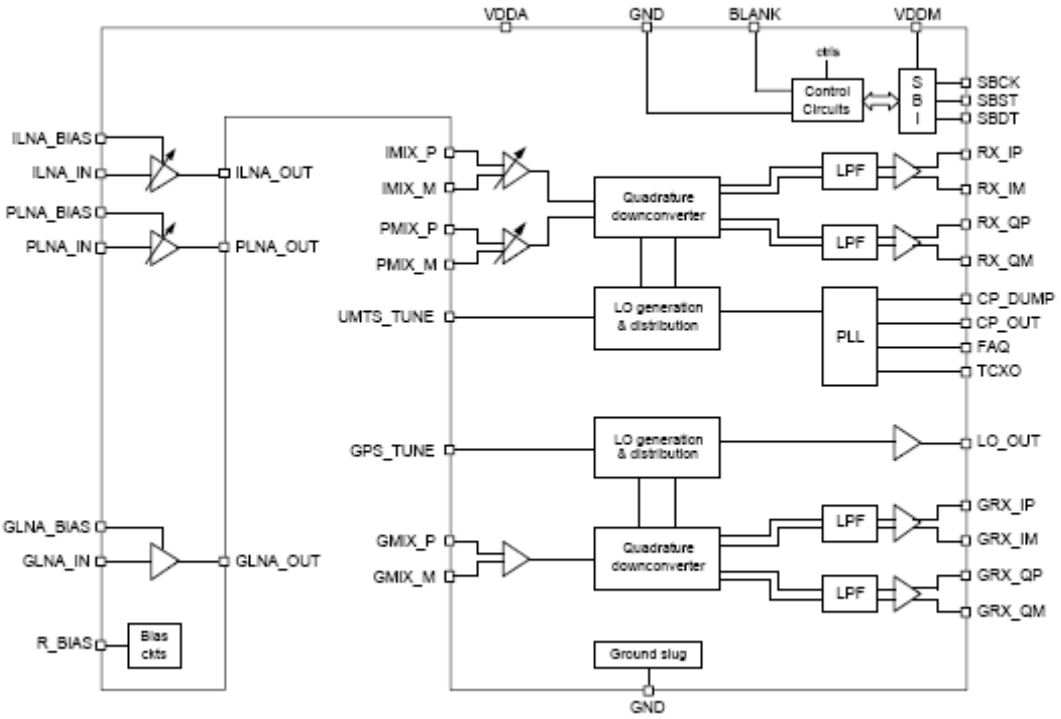


Figure 1.3.1-1 RFR6250 IC functional block diagram

3.3.2 Transmitter

The UMTS transmit path begins with analog baseband signals from the MSM device that drive the RTR6250 IC. The RTR6250 IC provides all the UMTS transmitter active signalpath circuits except the power amplifiers. Analog (I and Q) differential signals from the MSM device are buffered, filtered, and applied to Baseband-to-RF quadrature upconverters. Gain control is implemented on-chip. The RF outputs include an integrated matching inductor, reducing the off-chip matching network to a single series capacitor.

The RTR6250 UMTS output is routed to its power amplifier through a bandpass filter, and delivers fairly high-level signals that are filtered and applied to the PA. The PA device used in KU950 is “Load Insensitive PA”- no need to use isolator - and routed to the duplexer Tx port directly. Transmit power is delivered from the duplexer to the antenna through the switch module.

The RTR6250 IC integrates LO generation and distribution circuits on-chip, substantially reducing off-chip requirements. Various modes and programmable features result in a highly flexible transceiver LO output that supports not only UMTS transmissions, but all EGSM900 and DCS1800/PCS1900 Rx and Tx modes as well.

The UMTS Tx LO (PLL1) is generated almost entirely on-chip, requiring only the loop filter off-chip (two capacitors and two resistors); all UMTS Tx VCO and PLL circuits are on-chip. An internal RTR6250 switch routes the internal VCO signal to the LO generation and distribution circuits to create the necessary UMTS Tx LO signals.

3.4 LO Phase-locked Loop

Most LO functions are fully integrated on-chip, do not require user adjustment, and need not be considered by handset designers. QUALCOMM has established and implemented frequency plans and LO generation schemes that support the radioOne 6250-IIseries chipset while requiring minimal off-chip design effort. Only one area requires handset designer attention: the loop filters of each phase-locked loop (PLL).

3.4.1 UMTS Rx PLL (PLL2)

UMTS Rx LO functional blocks are distributed between the RFR6250 IC, RTR6250 IC, and external UMTS_RX_CH_VCO and loop filter components (Figure 1.4.1-1). The external UMTS_RX_CH_VCO must be enabled for UMTS Rx operation and disabled otherwise; a dedicated MSM6275 IC signal (UHF_VCO_EN) enables the VCO.

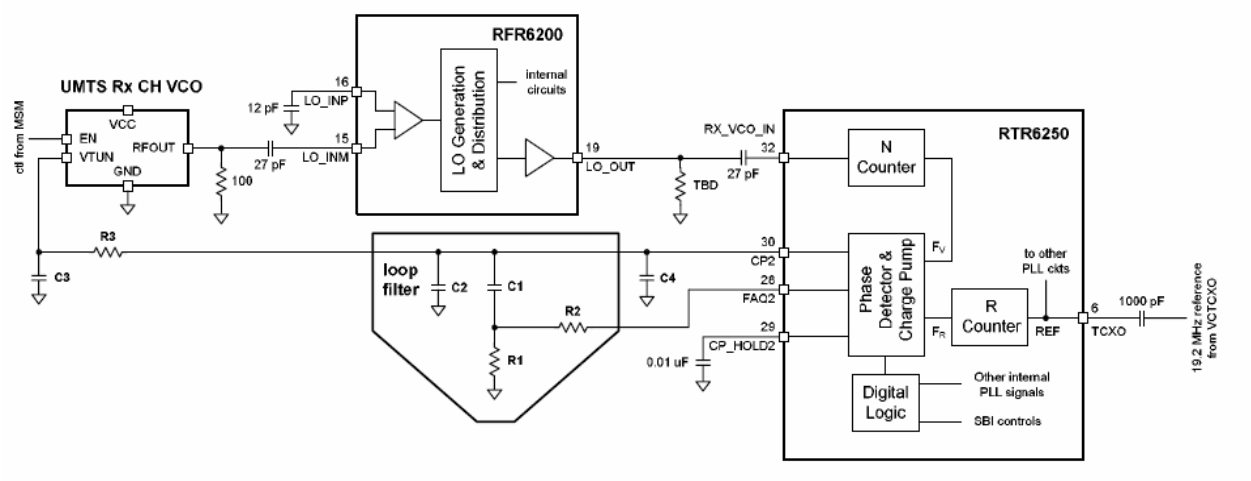


Figure 1.4.1-1 UMTS Rx PLL functional block diagram

The RFR6250 IC accommodates single-ended or differential LO inputs; if single-ended, either pin can be active. AC-couple the inactive pin to ground using an appropriately valued capacitor (12 pF is used in KS10). The 27 pF capacitor should be used to AC-couple the active pin to the VCO signal. Using only the selected VCO signal, the RFR6250 IC LO generation and distribution circuits create the necessary LO signals for the active quadrature downconverter.

A sample of the downconverter LO is buffered and routed from RFR6250 IC pin 19 to RTR6250 IC pin 32 (RX_VCO_IN). This signal requires a terminating resistor near the RTR6250 IC input pin and an AC coupling capacitor that assures the internal RTR6250 IC biasing is not disrupted in the example. Good microstrip or stripline controlled-impedance techniques must be used.

Most UMTS Rx PLL circuits are included within the RTR6250 IC: reference divider, phase detector, charge pump, feedback divider, and digital logic that generate LOCK status. The buffered 19.2 MHz TCXO signal provides the synthesizer input (REF), the frequency reference to which the PLL is phase and frequency locked. The reference is divided by the RCounter to create a fixed frequency input to the phase detector, FR. The other phase detector input (FV) varies as the loop acquires lock, and is generated by dividing the RX_VCO_IN frequency using the feedback path.s N-Counter. The closed loop will force FV to equal FR when locked. If the loop is not locked the error between FV and FR will create an error signal at the output of the charge pump. This error signal is filtered by the loop filter and applied to the VCO, tuning the output frequency such that the error is decreased. Ultimately the loop forces the error to approach zero and the PLL is phase and frequency locked.

Many key PLL performance characteristics are largely determined by the loop filter design - stability, transitory response, settling time, and phase noise.

3.4.2 Transceiver PLL (PLL1)

All LO functional blocks for the other handset modes(UMTS Tx, EGSM Tx/Rx, DCS Tx/Rx, PCS Tx/Rx) are integrated into the RTR6250 IC except the loop filter components (Figure 1.4.2-1). On-chip circuits include reference divider, phase detector, charge pump, VCO, feedback divider, and digital logic status. The functional description given in Section 1.4.1 for the UMTS Rx PLL applies to the Transceiver PLL as well.

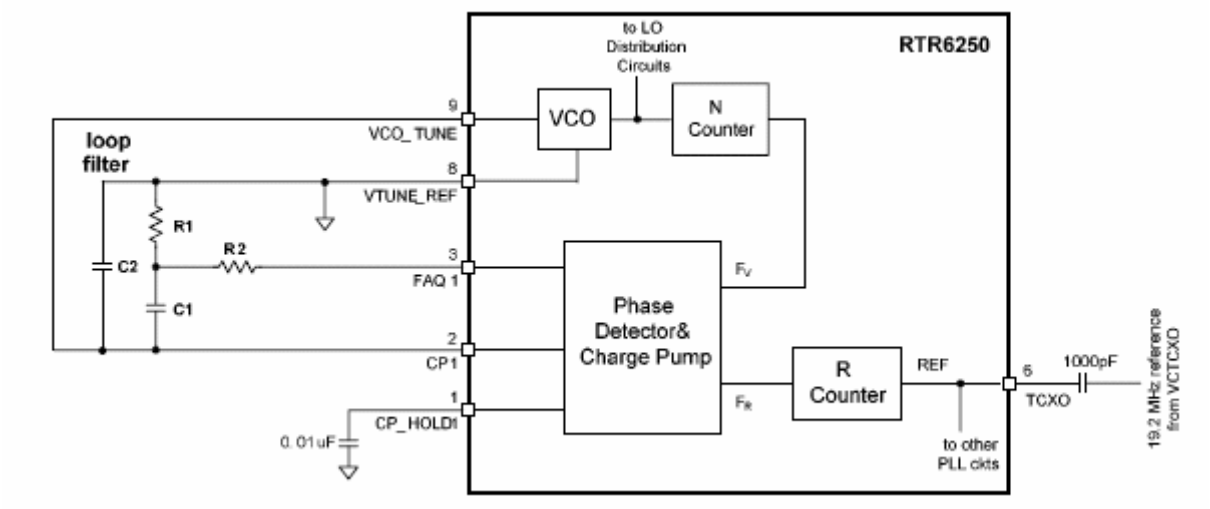


Figure 1.4.2-1 Transceiver PLL functional block diagram

The off-chip loop filter allows optimization of key PLL performance characteristics (stability, transitory response, settling time, and phase noise) for different applications. Guidelines are provided in the next subsection for proper implementation of this critical circuit.

3.5 Off-chip RF Components

3.5.1 Front End Module(FL500)

Front End module integrates antenna switch module and GSM Rx filter.
The antenna switch module allows multiple operating bands and modes to share the same antenna. In the KS10 design, a common antenna connects to one of six paths:

1) UMTS-2100 Rx/Tx, 2) EGSM Rx, 3) DCS-1800 Rx, 4) PCS-1900 Rx, 5)EGSM Tx, and 6) DCS-1800, PCS-1900 Tx. UMTS operation requires simultaneous reception and transmission, so the UMTS Rx/Tx connection is routed to a duplexer that separates receive and transmit signals. GSM band of operation is time division duplexed, so only the receiver or transmitter is active at any time and a frequency duplexer is not required. The module includes lowpass filters for the GSM bands transmit paths to reduce out-of-band emissions, PA harmonics in particular.

The GSM mode RF filters are located before their LNAs, so their insertion losses are extremely critical (1.3 dB typical). Other important parameters are:

■ Out-of-band rejection or attenuation levels

- ❏ Far out-of-band signals - ranging from DC up to the first band of particular concern and from the last band of particular concern to beyond three times the highest passband frequency.
- ❏ Frequencies of particular concern . bands known to include other wireless transmitters that may deliver significant power levels to the receiver input.
- ❏ GSM band receivers operate while the handset transmitters are off so there are no Txband leakage attenuation requirements.

■ Phase and amplitude balance - the UMTS discussion presented above applies for GSM bands as well. See the data sheet for specific values. Of course, passband ripple and return loss are still important in all cases for the same reasons explained in the antenna switch module and duplexer sections.

3.5.2 UMTS duplexer (U506)

A UMTS duplexer splits a single operating band into receive and transmit paths. Important performance requirements include:

- Insertion loss . this component is also in the receive and transmit paths; In the KS10 typical losses: UMTS Tx = 1.45 dB, UMTS Rx = 1.86 dB.
- Out-of-band rejection or attenuation . the duplexer provides input selectivity for the receiver, output filtering for the transmitter, and isolation between the two. Rejection levels for both paths are specified over a number of frequency ranges. Two Tx-to-Rx isolation levels are critical to receiver performance:
- Rx-band isolation . the transmitter is specified for out-of-band noise falling into the Rx band. This noise leaks from the transmit path into the receive path, and must be limited to avoid degrading receiver sensitivity. The required Rx-band isolation depends on the PA out of-band noise levels and Rx-band losses between the PA and LNA. Typical duplexer Rx band isolation value is 51 dB.

- Tx-band isolation . the transmit channel power also leaks into the receiver. In this case, the leakage is outside the receiver passband but at a relatively high level. It combines with Rx band jammers to create cross-modulation products that fall in-band to desensitize the receiver. The required Tx-band isolation depends on the PA channel power and Tx-band losses between the PA and LNA. Typical duplexer Tx-band isolation value is 57 dB.
- Passband ripple . the loss of this fairly narrowband device is not flat across its passband. Passband ripple increases the receive or transmit insertion loss at specific frequencies, creating performance variations across the bands channels, and should be controlled.
- Return loss . minimize mismatch losses with typical return losses of 10 dB or more (VSWR <2:1).
- Power handling. high power levels in the transmit path must be accommodated without degraded performance. The specified level depends on the operating band class and mobile station class (per the applicable standard), as well as circuit losses and antenna EIRP. Several duplexer characteristics depend upon its source and load impedances. QUALCOMM strongly recommends an isolator be used between the UMTS PA and duplexer to assure proper performance.

3.5.3 UMTS Power Amplifier (U505)

The AWT6277 meets the increasing demands for higher output power in UMTS handsets. The PA module is optimized for VREF = +2.85 V, a requirement for compatibility with the Qualcomm® 6250 chipset. The device is manufactured on an advanced InGaP HBT MMIC technology offering state-of-the-art reliability, temperature stability, and ruggedness. Selectable bias modes that optimize efficiency for different output power levels, and a shutdown mode with low leakage current, increase handset talk and standby time. The self-contained 4 mm x 4 mm x 1.1 mm surface mount package incorporates matching networks optimized for output power, efficiency, and linearity in a 50 Ω system.

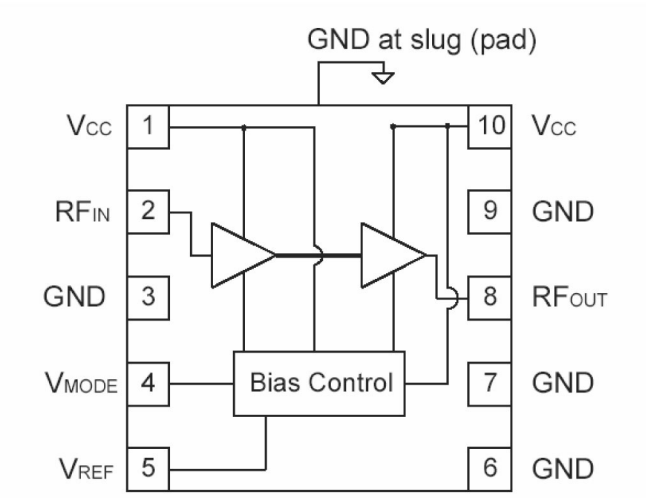


Figure 1.5.3-1 UMTS PA functional block diagram

3.5.4 Thermistor (R527)

This thermistor senses temperature variations around UMTS PA to adjust PA gain deviation for assure compliance with the applicable transmit power control standards. Negative temperature compensation thermistor is used in the KS10.

3.5.5. UMTS transmit power detector (U504)

This detector couples PA output power level to calibrate the transmitter characteristic over the channel variation and temperature. Its detector coupling range and converted voltage is based on diode sensitivity and transmitter power level.
The KS10 uses National Semiconductor ADL5500 power detector IC. In Figure 1.5.5-1, C580 is set to 47ohm&Coupler resulting in an attenuation of 31.4dB. The output voltage is proportional to the logarithm of the input power. Figure1.5.5-2 shows the output voltage versus PA output power of the ADL5500 setup as depicted in Figure1.5.5-1

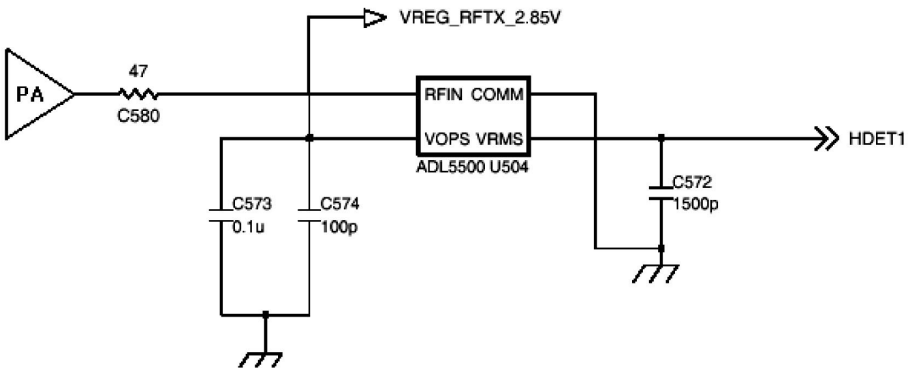


Figure 1.5.5-1 Block diagram of ADL5500 with resistive tap

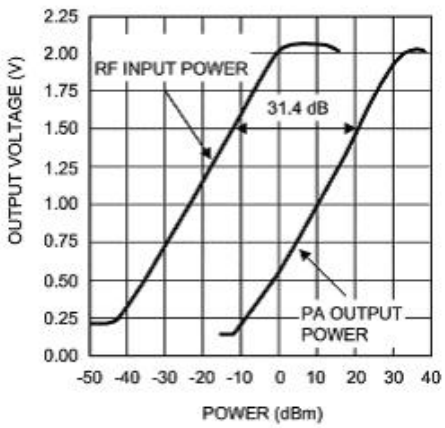


Figure 1.5.5-2 Power detector response, Vout vs PA output power

3.5.6 Dual band GSM power amplifier (U501)

The TQM7M5003 is a high-power, high-efficiency power amplifier module with integrated power control that provides over 50dB of control range. The devices is a self-contained 6mm°ø6mm module with 50Ω input and output terminals. The device is designed for use as the final RF amplifier in GSM850, EGSM900, DCS and PCS hand-held digital celluar equipment and other applications in the 824MHz to 849MHz, 880MHz to 915MHz, 1710MHz to 1785MHz and 1850MHz to 1910MHz bands. The VBATT pin connects to an internal current-sense resistor and interfaces to an integrated power amplifier control function, which is insensitive to variations in temperature, power supply, process, and input power. The ENABLE input allows initial turn-on of PAM circuitry to minimize battery drain.

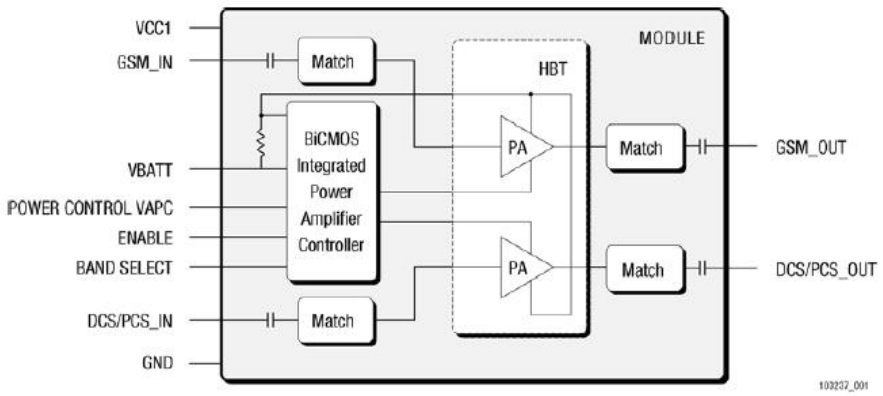


Figure 1.5.6-1 GSM PA functional block diagram

3.5.7 GSM transmit VCO (U502)

The dual Tx VCO is a key component within the GSM OPLL. This VCO performance directly impacts PLL and transmitter performance. VCO specifications refer to muRata MQW5V0C869M datasheet.

The dual Tx VCO outputs, one for Low-band GSM and one for high band, drive a resistive network that splits the active signal into two signals: 1) the input to the active PA . this is the low loss path, and 2) the OPLL feedback signal . this is the high loss path. See Figure 8-1 for recommended topology and resistor values.

The losses from the VCO outputs to the PA inputs must be factored into the output chain.s power budget. Each path includes a π-pad that introduces approximately a 3-dB loss. The low band GSM π-pad is formed by R516 plus R522, R521, and R524; the high band GSM π-pad is formed by R518 plus R523, R520, and R524. One leg of each π-pad is used to couple the VCO output to form the feedback path as described below.

For a given VCO output drive level, the loss to the RTR6250 input must assure the specified input level is achieved (-18 to -12 dBm). Large resistors included in the π-pads are used to lightly couple off the VCO outputs to create the feedback signal. Since the RTR6250 TX_VCO_FB pin presents fairly high impedance. A series capacitor (82 pF) AC couples the feedback signal into the RTR6250 IC.

3.5.8 UMTS Rx RF filter (FL501)

An RF filter is located between the UMTS LNA and mixer. Insertion loss is important, but not as critical as losses before the LNA. The most important parameters of this component include:

■ Out-of-band rejection or attenuation levels, usually specified to meet these conditions:

- ❏ Far out-of-band signals - ranging from DC up to the first band of particular concern and from the last band of particular concern to beyond three times the highest passband frequency.
- ❏ Tx-band leakage - the transmitter channel power, although attenuated by the duplexer, still presents a cross-modulation threat in combination with Rx-band jammers. The RF filter must provide rejection of this Tx-band leakage.
- ❏ Other frequencies of particular concern . bands known to include other wireless transmitters that may deliver significant power levels to the receiver input.

■ Phase and amplitude balance - the ZIF architecture requires well-balanced differential inputs to the RFR6250 IC. This is accomplished by the RF filter which takes a single-ended output from the RFL6250 IC and provides differential outputs having nominal 180 phase separation. Phase and/or amplitude imbalance causes degraded common-mode rejection and second-order nonlinearity, so their requirements are specified jointly.

- ❏ ±3 degrees and ± 1 dB
- ❏ -12 to + 3 degrees and ± 0.7 dB

Of course, passband ripple and return loss are still important in all cases for the same reasons explained in the antenna switch module and duplexer sections.

3.5.9 VCTCXO (X500)

The Voltage Controlled Temperature Compensated Crystal Oscillator (VCTCXO) provides the reference frequency for all RFIC synthesizers as well as clock generation functions within the MSM6275 IC. The 6275-series chipset requires a 19.2 MHz nominal VCTCXO frequency. The oscillator frequency is controlled by the MSM6275's TRK_LO_ADJ pulse density modulated signal in the same manner as the transmit gain control.

The filtered PDM signal results in an analog control signal into the VCTCXO tuning port whose voltage is directly proportional to the density of the digital bit stream. The MSM device varies the pulse density to change the analog control voltage that sets the oscillator frequency - all within a feedback control loop that minimizes handset frequency drift relative to the network.

3. BB Technical Description

3.6 Digital Baseband (Stn8810 / MSM6275)

3.6.1 General features of Stn8810 device

- Support for Peripheral Device & multimedia function
- Support for high-speed downlink packet access (HSDPA) - 1.8 Mbps
- Minimal support for high-level operating system such as Symbian™, Linux and WinCE® operating systems (OSs).
- 1-Gbit NAND Flash memory, 512-Mbit DDR mobile RAM Stacked in Package
- Two DSP implementation for multimedia function
  - Smart video accelerator : Programmable DSP (MMDSP+) for intermediate level processing, clocked at 66 MHz,
  - Smart audio accelerator : High-performance block, flexible sophisticated audio accelerator based on the MMDSP+ programmable audio DSP, clocked at 133 MHz,
- ARM926EJ 32-bit RISC CPU at 350MHz

  32-Kbyte instruction cache, 16-Kbyte data cache
- MultiMedia Card/SD Card/SDIO host controller
- 96 general-purpose I/Os (muxed with peripheral I/Os)
- Camera interfaces
  - Supports high-resolution camera modules up to 4 Mpixels
  - Serial camera interface up to 416 Mbit/s (MIPI legacy CSI)
  - Parallel camera CCIR-656 interface up to 66 MHz (MIPI legacy CPI)
- Color LCD controller for STN or TFT panels or display interface for display module
  - 24-bpp true color
  - MIPI legacy DBI and DPI
- Host port interface (HPI)
  - 16-bit parallel data bus,
  - Multiplexed and non-multiplexed address/data bus,
  - Indirect host access,
  - Direct host access to a segment of STn8810 memory in multiplexed mode.
  - Interface to modem for data communication
- I/O peripherals
  - 3 autobaud UARTs (one with modem control signals) up to 3.692 Mbit/s
  - 1 synchronous serial port (SSP) up to 24 Mbit/s
  - 3 multichannel serial ports (MSP) up to 48 Mbit/s
  - 2 I©˜C multi-master/slave interfaces
  - One 8-channel, full-duplex high-speed serial interface, 108 Mbit/s
  - Host port interface
  - JTAG

3.6.2 General features of MSM6275 device

- Support for multimode operation - WCDMA(UMTS), GSM/GPRS, EDGE
- Support for high-speed downlink packet access (HSDPA) - 1.8 Mbps
- Support for WCDMA (UMTS) uplink data rate up to 384 kbps
- High-performance ARM926EJ-S running at up to 225 MHz
- ARM Jazelle Java hardware acceleration for faster Java-based games and other applets
- QDSP4000 high-performance DSP cores
- Integrated gpsOne position location technology functionality
- Integrated Bluetooth 1.2 baseband processor for wireless connectivity to peripherals
- High-speed, serial mobile display digital interface (MDDI) Type I, which optimizes the interconnection cost between the MSM device and LCD panel
- Direct interface to digital camera module with video front end (VFE) image processing
- Vocoder support (AMR, FR, EFR, HR)
- Advanced 14x14 mm, 0.5 mm pitch, 409-pin lead-free CSP packaging technology
- WCDMA Access
  - Maximum of eight simultaneous transport channels
  - Four coded composite transport channels (CCTrCH)
  - PS data rates supporting 384kbps DL / 64kbps UL
- GSM/GPRS Access
  - GSM/GPRS network signaling (from Layer 1 to 3)
  - GSM AMR,EFR,FR
- Operation and Services
  - USIM Interfaces
  - General Purpose I/O (GPIO) Interface
  - Dual Memory Buses (EBI1-SDRAM & EBI2-NAND Flash)
  - JTAG
  - RTC
- Data Communication
  - UARTs (ACB, EDB (RS232))
  - Slave USB

3.7. Hardware Architecture

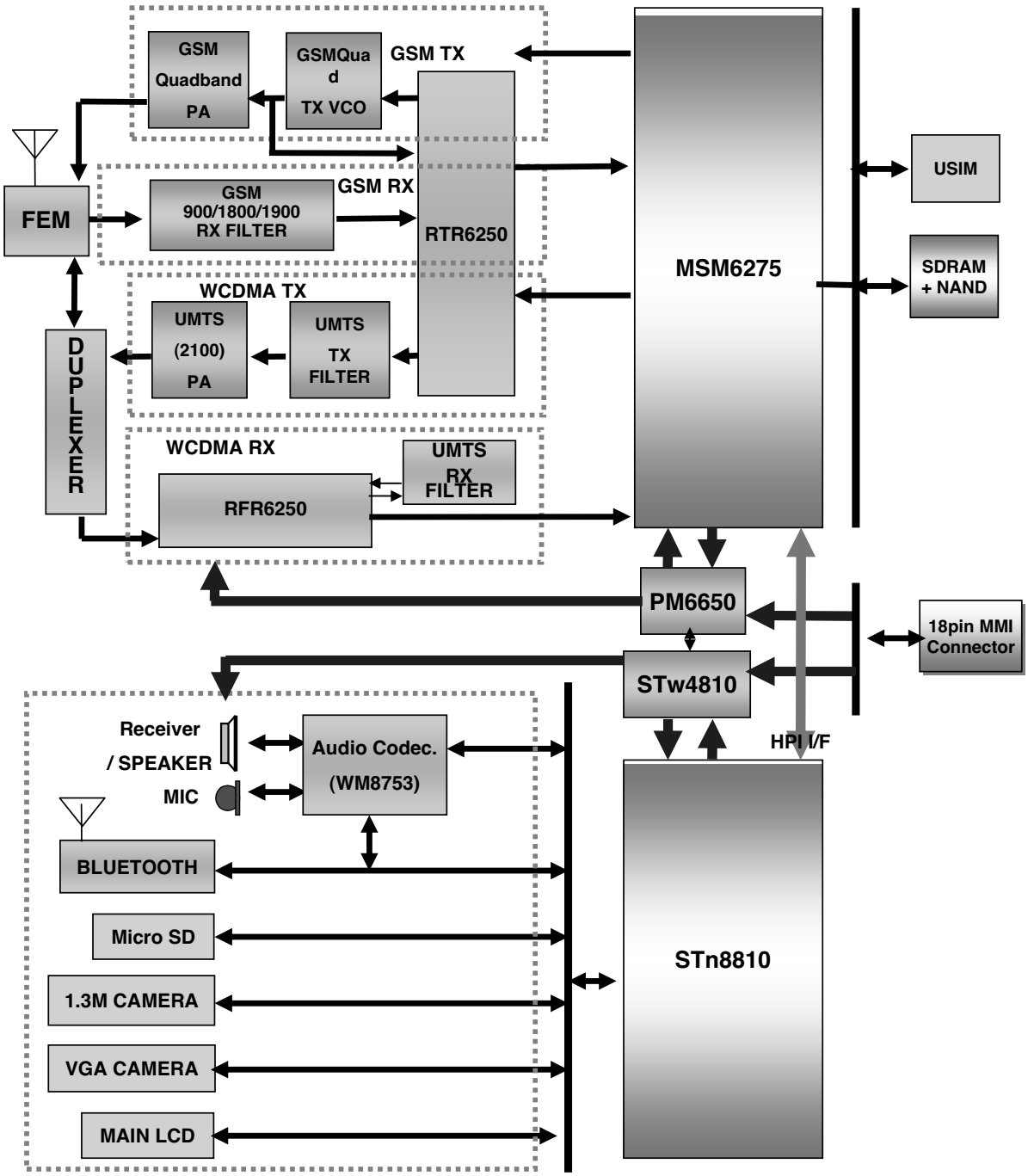


Figure. Simplified Block Diagram

3.7.1. STn8810 and supported peripherals

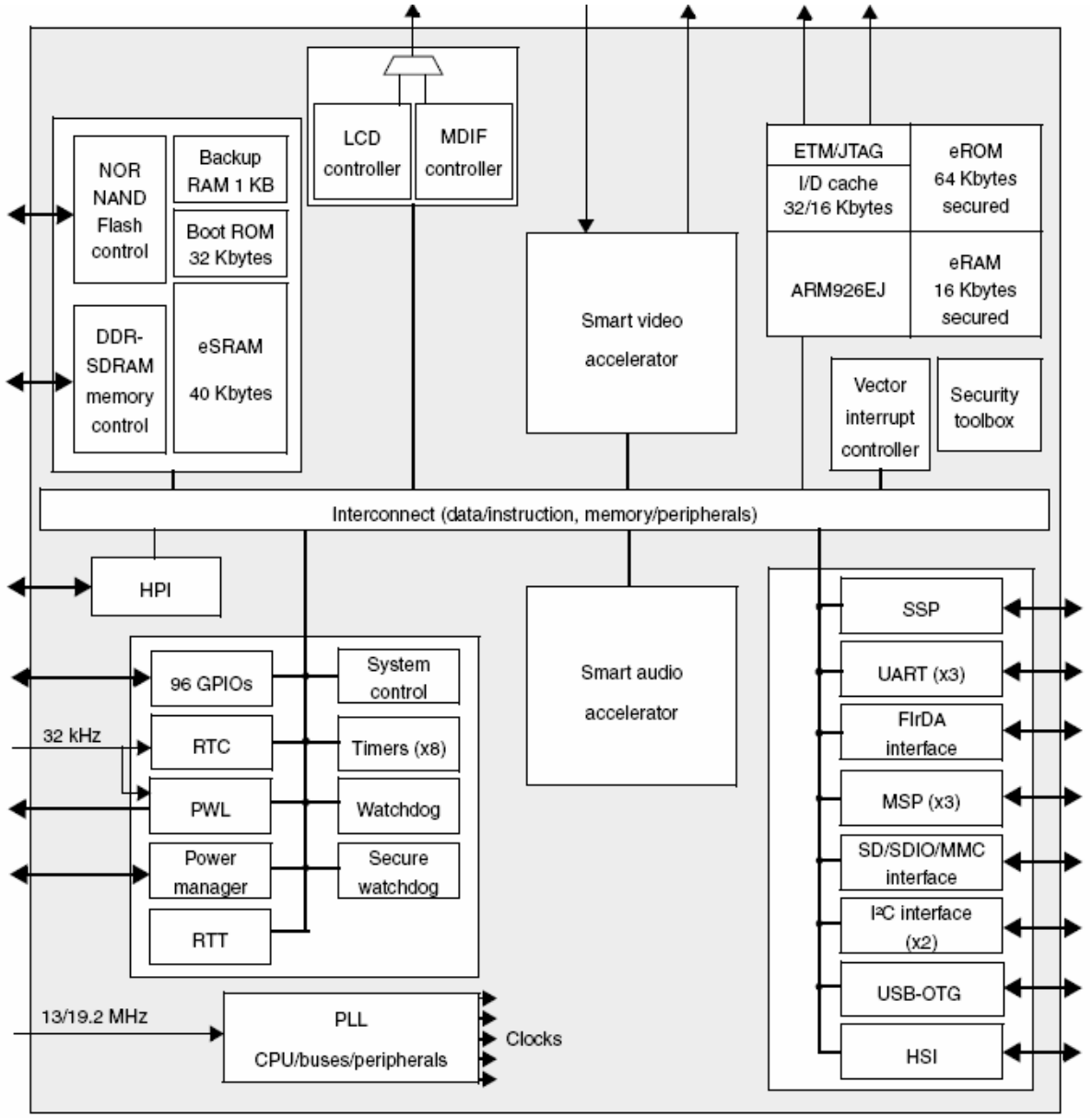


Figure. STn8810 and supported peripherals

3.7.2. MSM6275 and supported peripherals

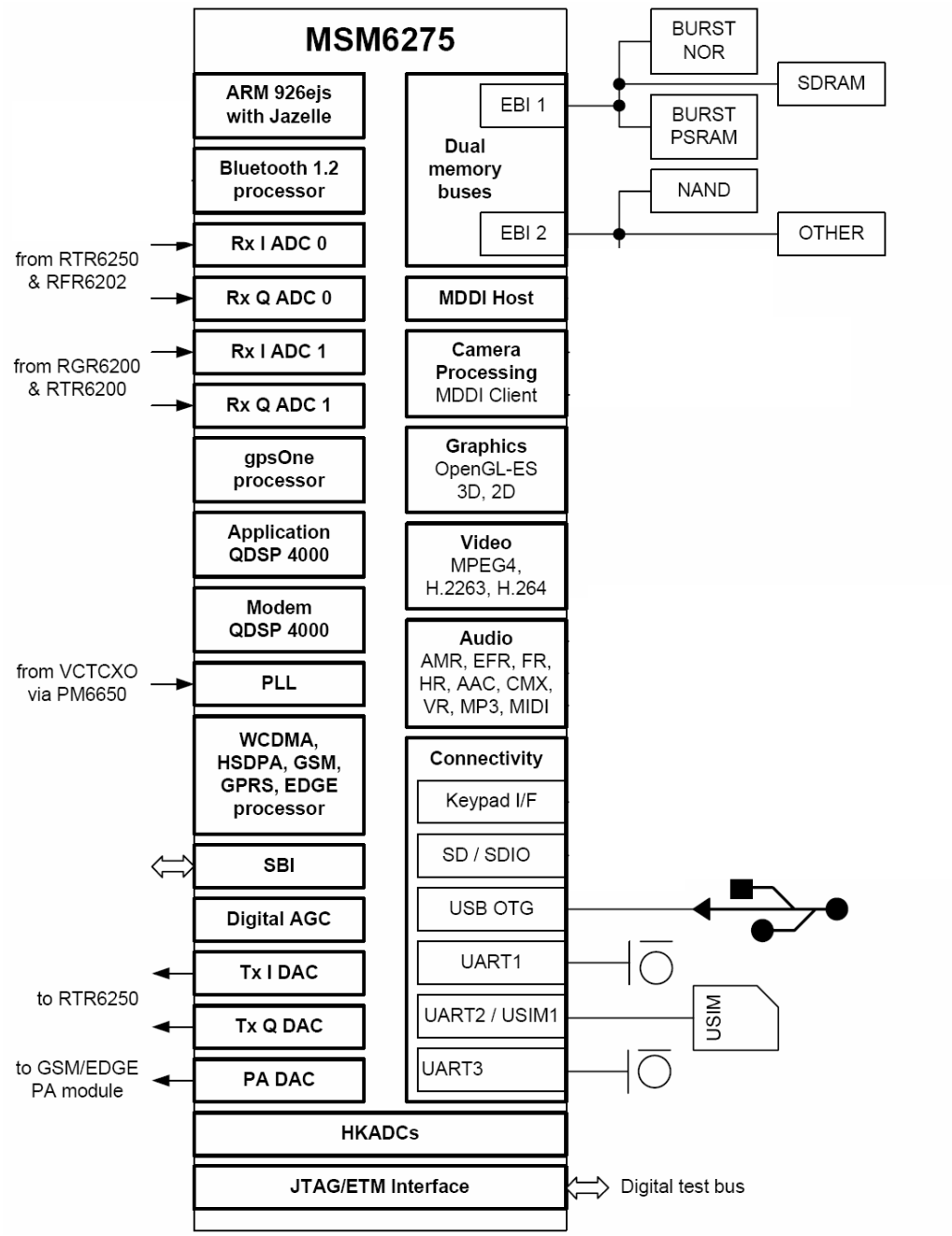


Figure. MSM6275 and supported peripherals

3.8. Subsystem of STn8810

3.8.1. ARM926EJ processor

The STn8810 CPU is an ARM926EJ reduced instruction set computer (RISC) processor. This 32-bit processor core supports 32-bit ARM® and 16-bit Thumb instruction sets, enabling the user to trade off between high performance and high code density.
The cached ARM CPU features a memory management unit (MMU) and is clocked at 264 MHz.
It has a 32-Kbyte instruction cache and a 16-Kbyte data cache, and supports the Jazelle™ extensions for Java acceleration. It also includes an embedded trace module (ETM Medium+) for real-time CPU activity tracing and debugging. It supports 4-bit and 8-bit normal trace mode and 4-bit demultiplexed trace mode, with normal or half-rate clock.

3.8.2. Smart video accelerator (SVA)

Using leading-edge technology, this block is a low-power, high-performance video accelerator that supports the following features:
- MPEG-4 simple profile level 3 video encoder and decoder; real time up to VGA 30 fps (encode only or decode only)
- H.263 profile 3 level 10 video codec; real time subQCIF or QCIF 15 fps for videoconferencing
- H.263 profile 3 level 30 video encoder or decoder; real-time up to CIF 30 fps
- JPEG baseline accelerated encoder or decoder, up to 4080 x 4080 pixels
- Programmable DSP (MMDSP+) for intermediate level processing, clocked at 66 MHz
- Picture pre-/post-processing
- Low-power implementation

3.8.3. Smart audio accelerator (SAA)

This high-performance block is a flexible sophisticated audio accelerator based on the MMDSP+ programmable audio DSP, clocked at 133 MHz, and features:
- 24-bit data path
- Ultra-low power implementation

The audio accelerator features:
- MP3, AAC, AAC+ (SBR) decoding, Midi synthesis, and more
- Speech codecs: AMR (WB, NB), and more
- Audio sample rates of 32 kHz, 44.1 kHz and 48 kHz
- Noise reduction and echo cancelling
- Stereo enhancements and surround effects

3.8.4. Advanced power management unit (PMU)

The dynamic PMU optimizes power consumption of the STn8810. It delivers all the platform clocks, and handles reset management. It also manages GPIO levels during sleep mode and emergency self-refresh of SDRAM.
The PMU controls the external voltage regulator, in order to change its settings in different modes. In deep-sleep mode, only GPIOs, the real-time clock (RTC), system and reset controller (SRC), PMU and secured RAM remain in operation. The PMU also controls the embedded 1.2 V voltage switch that switches off the logic supply after the platform has entered sleep mode.
The family of power manager ICs, STw481x companion chips, seamlessly interface with the Nomadik STn8810 and optimize global system power consumption leveraging on the PMU.

3.8.5. Host port interface (HPI)

The host port interface features:
- 16-bit parallel data bus
- Multiplexed and non-multiplexed address/data bus
- Indirect host access
- Direct host access to a segment of STn8810 memory in multiplexed mode

3.8.6. General purpose inputs/outputs (GPIOs)

The STn8810 provides 96 programmable inputs or outputs that have switchable pull-up and pull-down resistors and are controllable in two modes:
- Software mode through an APB bus interface
- Hardware mode through a hardware control interface

The GPIO interface provides the following individually programmable functions:
- Any number of pins may be configured as interrupt sources
- Debouncing logic can be enabled for each GPIO to filter out glitches on I/Os
- Any GPIO may be used to wake up the device from sleep mode independent of interrupt programming, and the input level that triggers wake-up is definable for each enabled GPIO

3.8.7. Universal asynchronous receivers-transmitters (UARTs)

The STn8810 provides three autobaud UARTs, one of which offers all modem control/status signals. They are enhanced versions of the industry-standard 16C550 UART with a high data rate up to 3.692 Mbit/s.

3.8.8. USB interface

The STn8810 USB interface is USB 2.0 compliant, with On-The-Go standard extension (rev 1.0) compliance. The USB-OTG features:

- Supports full-speed (12 Mbit/s) and low-speed (1.5 Mbit/s) signaling bit rate
- Supports session request protocol (SRP) and host negotiation protocol (HNP)
- 8 bidirectional endpoints plus control endpoint 0
- Digital interface to external PHY
- Fully compatible with STw4810 power manager companion chip

3.8.9. I²C bus interface

The STn8810 provides two I©¯C bus interfaces that support the following features:

- Slave transmitter/receiver and master transmitter/receiver modes
- Multi-master capability
- 10-bit addressing
- Standard (100 kHz) and fast (400 kHz) speeds
- Compliance with I²C and DDC standards

In addition to receiving and transmitting data, the interface converts data from serial to parallel format and vice-versa using an interrupt or polled handshake. The interrupts are enabled and disabled in software.

3.8.10. MultiMediaCard/secure data card interface (MMC/SD/SDIO)

This interface can directly control one SD card (without encryption/decryption logic) or SDIO card, or one MultiMediaCard. It also supports several of each card type using the GPIOs for card selection.

3.9. Hardware Peripheral system of Stn8810

3.9.1. Keypad

KS10 has 28 buttons, 12 function keys in Sub PCB (Folder), 12 numeric keys in main and 4 side keys. KS10 use key coder IC because Stn8810 has not enough GPIO. Key coder IC use interrupt and I2C interface for communication with STn8810. Figure shows the Keypad circuit.
°ÆEND' Key is connected to PM_ON_SW_N to PM6650

	COL0	COL1	COL2	COL3	COL4	COL5	COL6
ROW0	1	2	3	Vol. UP	Left Soft Key	UP	Right Soft Key
ROW1	4	5	6	Vol. DOWN	MENU	OK	CANCEL
ROW2	7	8	9	SHOT	SEND	DOWN	END
ROW3	*	0	#		LEFT	EDIT	RIGHT
	Main			Side Key	Folder		

Table. Key Matrix Mapping Table

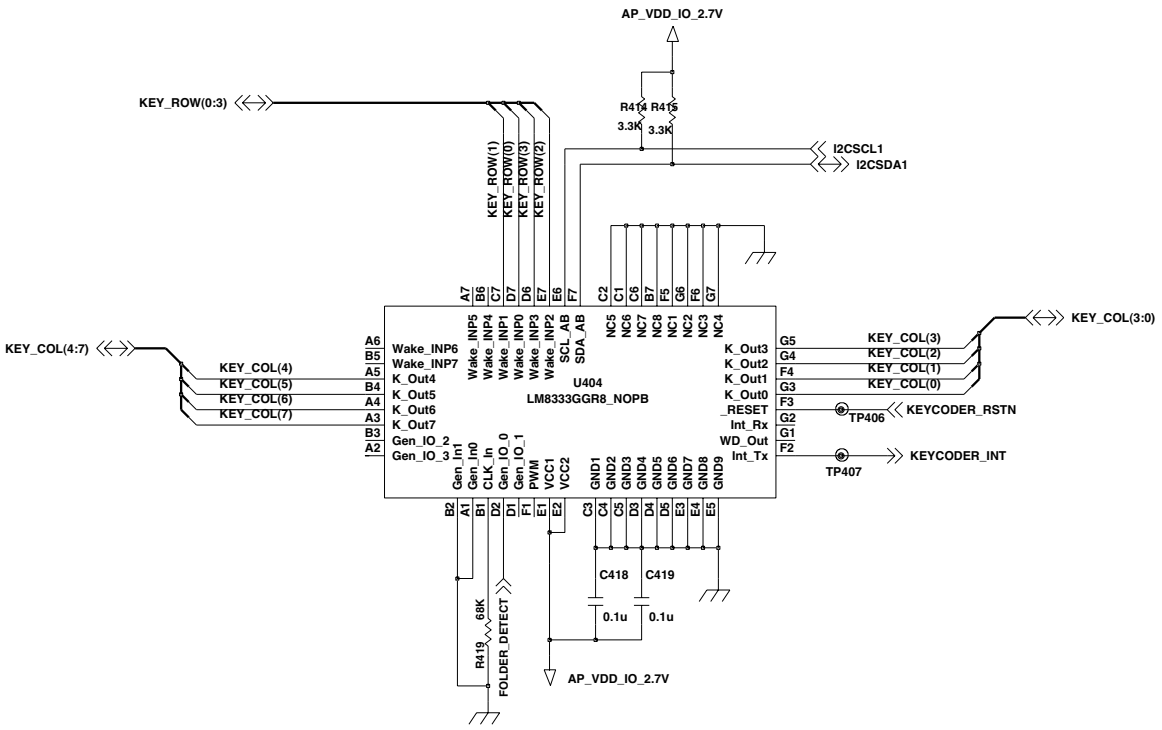
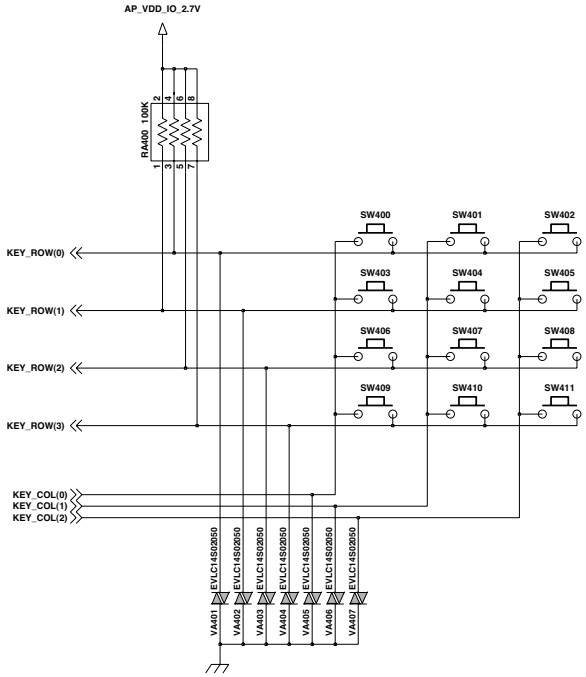
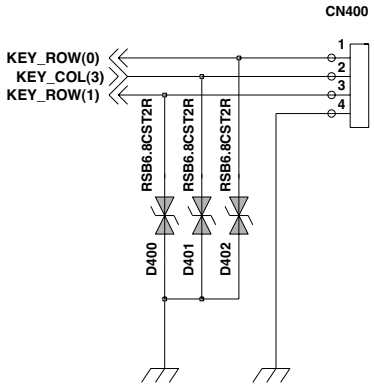


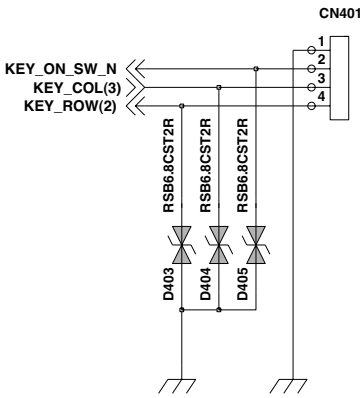
Figure. Schematic of key coder IC



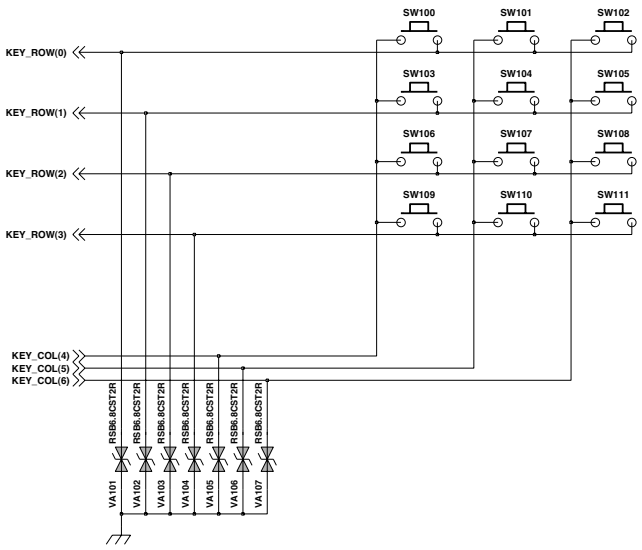
Main PCB



Side Key (Vol. UP/Down)



Side Key (Power/Shot)



Sub PCB

Figure. Schematic of keypad

3.9.2. Folder on/off operation

There is a magnet to detect the folder status, opened or closed. If a magnet is close to the hall-effect switch, the voltage at pin1 of U402 goes to 0V. Otherwise, 2.7V. This folder signal is delivered to GPIO0 of the Key coder IC .

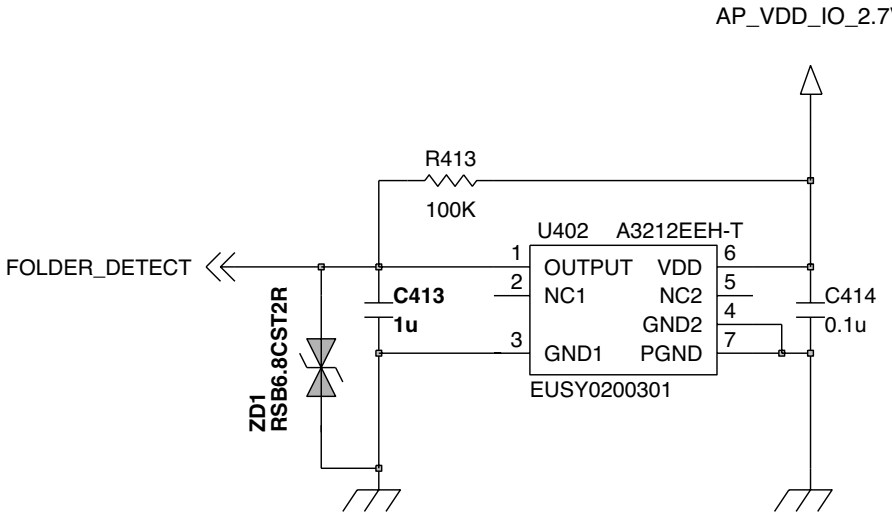


Figure. Schematic of folder on/off detection circuit

3.9.3. Keypad backlight

There are 8 White LEDs on Top side of Main PCB and 9 White LEDs on Top side of sub PCB in board backlight circuit and, which are driven by KEYBD_BACKLIGHT line form PM6650. Key Pad backlight controlled by PM6650.

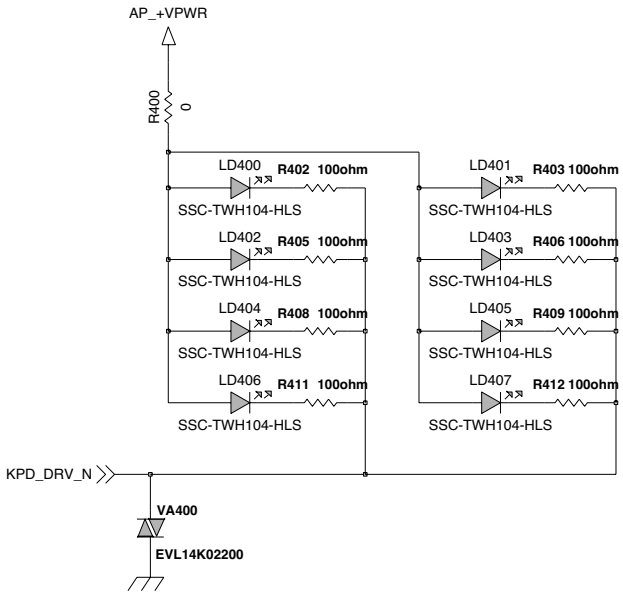


Figure. Schematic of main PCB keypad backlight circuit

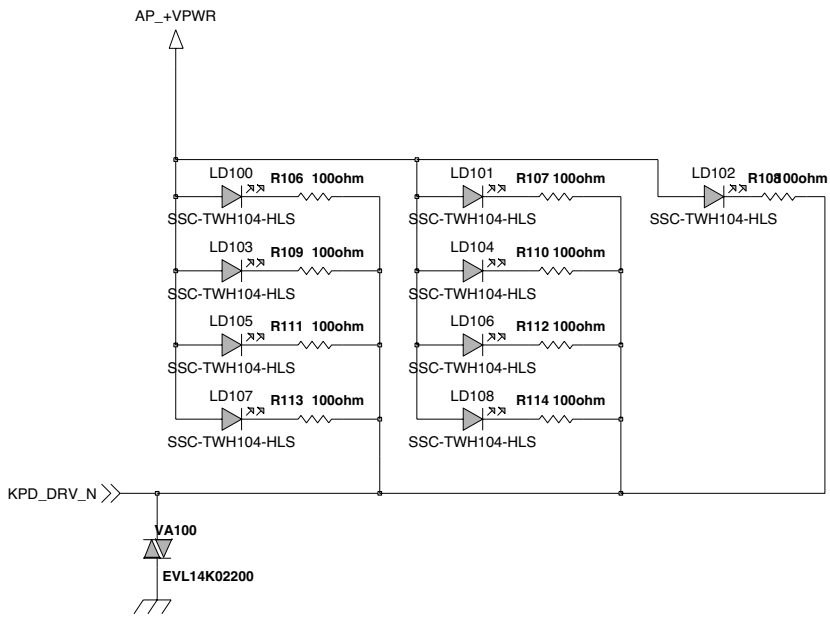
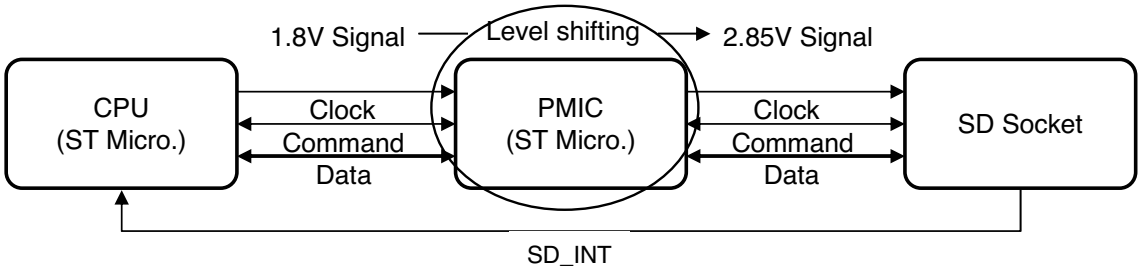
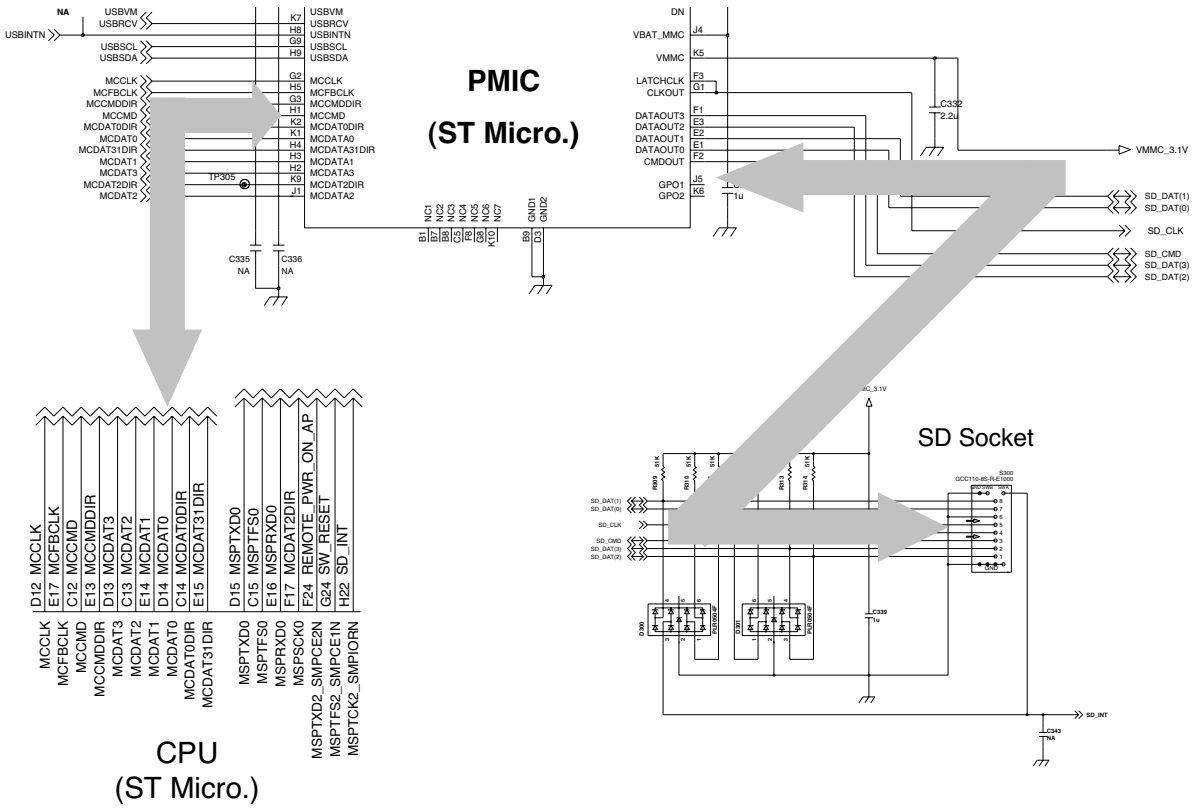


Figure. Schematic of key PCB keypad backlight circuit

3.9.4. Micro SD





3.10. Subsystem of MSM6275

3.10.1. ARM Microprocessor Subsystem

The MSM6275 device uses an embedded ARM926EJ-S microprocessor. This microprocessor, through the system software, controls most of the functionality for the MSM device, including control of the external peripherals such as the keypad, LCD, RAM, ROM, and EEPROM devices. Through a generic serial bus interface (SBI) the ARM926EJ-S configures and controls the functionality of the RFL6202, RFR6202, RTR6250, RTR6200, and PM6650 devices.

3.10.2. UMTS/HSDPA Subsystem

The UMTS/HSDPA subsystem performs the digital release 99 June 2004 of the WCDMA FDD standard and release 5 specifications of HSDPA signal processing.

The UMTS Subsystem performs the digital UMTS signal processing. Its components include:

- Searcher engine
- Demodulating fingers
- Combining block
- Frame deinterleaver
- Viterbi decoder
- Up-link subsystem
- Turbo decoder

On the down-link channel the UMTS subsystem searches, demodulates, and decodes incoming CPICH, CCPCH, SCH, and Traffic Channel information. It extracts packet data from the downlink traffic channel and prepares the packet data for processing. For the up-link, the WCDMA subsystem processes the packet data and modulates the up-link traffic channel (DCH).

3.10.3. GSM/GPRS Subsystem

The GSM/GPRS/EGPRS subsystem reuses the MSM6275 GSM core. It performs the digital GSM signal processing and PA gain controls for GPRS support. The PA output level is controlled by an analog signal generated on the MSM. In GSM mode, the power profile ramps up before The burst and ramps down after the burst. In GPRS mode, at the beginning of each burst (up to Four active transmit slots), PA must be smoothly ramped up to some desired output power level, Held at that level for the current slot, smoothly ramped down/up during the transition period and Held to the new level for the next slot until the last slot. Then it must be smoothly ramped down to near-zero level. The MSM6275 support differential GSM PA power control output.

3.10.4. RF Interface

The RF interface communicates with the mobile station external RF circuits. Signals to these Circuits control signal gain in the Rx and Tx signal path, control DC offset errors, and maintain the system frequency reference.

3.10.5. Serial Bus Interface (SBI)

The MSM6275 device's SBI is designed specifically to be a quick, low pin count control Protocol for QUALCOMM's RFL6202, RFR6202, RTR6250, RTR6200, and PM6650 ASICs. Using the SBI, the RTR6250, RFR6200, RFL6200, and PM6650 devices can be configured for different operating modes and for minimum power consumption, extending battery life in standby mode. The SBI also controls DC baseband offset errors.

3.10.6. HKADC

The MSM6275 device has an on-chip 8-bit analog-to-digital converter (HKADC) which is Intended to digitize DC signals corresponding to analog parameters such as battery voltage, temperature, and RF power levels.

The MSM6275 device has seven analog input pins (HKAIN[5:0]) which are multiplexed to the input of the internal HKADC.

3.10.7. Stereo Wideband CODEC

The MSM6275 device integrates a wideband voice/audio codec into the MSM. The codec supports two differential microphone inputs, one differential earphone output, one single-ended earphone output, and a differential analog auxiliary interface. The codec integrates the microphone and earphone amplifiers into the MSM6275 device, reducing the external component count to just a few passive components. The microphone (Tx) audio path consists of a two-stage amplifier with the gain of the second stage set externally. The Rx/Tx paths are designed to meet the ITU-G.712 requirements for digital transmission systems.

3.10.8. Vocoder Subsystem

The MSM6275 QDSP4000 supports AMR, FR, EFR, and HR. In addition, the QDSP4000 has modules to support the following audio functions: DTMF tone generation, DTMF tone detection, Tx/Rx volume controls, Tx/Rx automatic gain control (AGC), Rx automatic volume control (AVC), ear seal echo canceller (ESEC), acoustic echo canceller (AEC), noise suppression (NS), and programmable, 13-tap, Type-I, FIR, Tx/Rx compensation filters. The MSM6275 device's integrated ARM9TDMI processor downloads the firmware into the QDSP4000 and configures the QDSP4000 to support the desired functionality.

3.10.9. General-Purpose Input/Output Interface

The MSM6275 device has general-purpose bidirectional input/output pins. Some of the GPIO pins have alternate functions supported on them. The alternate functions include USB interface, additional RAM, ROM, general-purpose chip selects, parallel LCD interface, and a UART interface. The function of these pins is documented in the various software releases.

3.10.10. UART

There are three UARTs in the MSM6275 ASIC:

- UART1 for data
- UART2 (can be used for USIM interface)
- UART3 (can be used for PM SBI interface)

3.10.11. USB

The MSM6275 device integrates a universal serial bus(USB) controller that supports both unidirectional and bidirectional transceiver interfaces. The USB controller acts as a USB peripheral communicating with the USB host. It is also capable of a USB OTG interface to a USB OTG Transceiver.

3.11. External memory interface

The MSM6275 have two external memory interfaces with arbitration for the multi-layer AHB system and memory controllers. The EBI1 bus is a high performance bus that supports a wide variety of memories. EBI2 bus is targeted to be the interface for slow peripheral devices(i,.e., LCD) as well as the NAND flash memory.

• EBI1 Features
- 16 bit static and dynamic memory interface
- 32 bit dynamic memory interface
- 24 bits of address for static memory devices which can support up to 32MBytes on each chip select
- Synchronous burst memories supported (burst NOR, burst PSRAM)
- Synchronous DRAM memories supported
- Byte addressable memory supporting 8 bit, 16 bit and 32 bit accesses
- Pseudo SRAM (PSRAM) memory support

• EBI2 Features
- Support for asynchronous FLASH and SRAM(16bit & 8bit).
- Interface support for byte addressable 16bit devices(UB_N & LB_N signals).
- 2Mbytes of memory per chip select.
- Support for 8 bit wide NAND flash.
- Support for parallel LCD interfaces, port mapped of memory mapped(16 & 8 bit)

• 512Mb NAND flash memory + 512Mb SDRAM (1die)

Interface Spec				
Device	Part Name	Maker	Read Access Time	Write Access Time
FLASH	TY90009800COGG	Toshiba	35 ns/Bytes	50 ns/Bytes
SDRAM	TY90009800COGG	Toshiba	107 ns/4Double Word	53 ns/4Double Word

Table. External memory interface for KS10

3.12. Hardware sub system of MSM6275

3.12.1. RF Interface

3.12.1.1. RTR6250 (WCDMA_Tx, GSM_Tx/Rx)

MSM6275 controls RF part(RTR6250) using these signals.

- SBST,SBDT,SBCK : SBI I/F signals for control Sub-chipset
- PA_ON : Power AMP on RF part
- RX_I/Q,TX_I/Q : I/Q for Tx/Rx of RF
- TX_AGC_ADJ : control the gain of the Tx signal prior to the power amplifier

3.12.1.2. RFR6250 (WCDMA_Rx)

- SBST,SBDT,SBCK : SBI I/F signals for control Sub-chipset
- RX_I/Q, : I/Q for Rx of RF

3.12.1.3. The others

- GSM_PA_BAND : DCS/GSM Band Selection of Power Amp
- TRK_LO_ADJ : TCXO(19.2M) Control
- PA_ON : WCDMA TX Power Amp Enable
- ANT_SEL[0-2] : Ant Switch Module Mode Selection (WCDMA,GSM Tx/Rx,DCS Tx/Rx)
- GSM_PA_RAMP : Power Amp Gain Control of APC_IC
- GSM_PA_EN : Power Amp Gain Control Enable of APC_IC
- GSM_TX_VCO_0_EN_N : GSM Band Tx VCO Enable of Dual VCO
- GSM_TX_VCO_1_EN_N : DCS Band Tx VCO Enable of Dual VCO

600-1
M6275_A

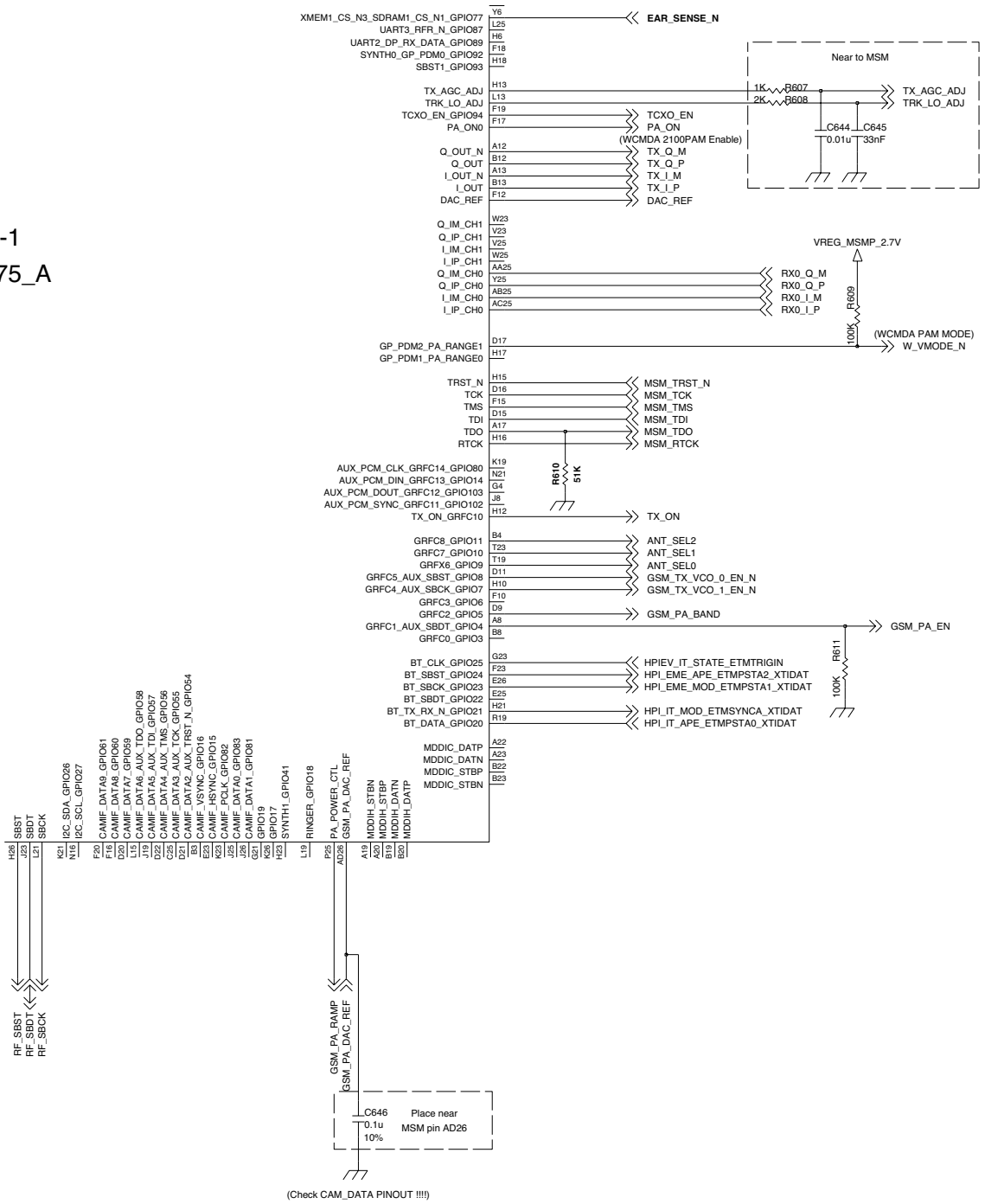


Figure. Schematic of RF Interface of MSM6275

3.12.2. MSM sub system

3.12.2.1. SIM interface

SIM interface scheme is shown in Figure.
And, there control signals are followed

- USIM_CLK : USIM Clock
- USIM_Reset : USIM Reset
- USIM_Data : USIM Data T/Rx

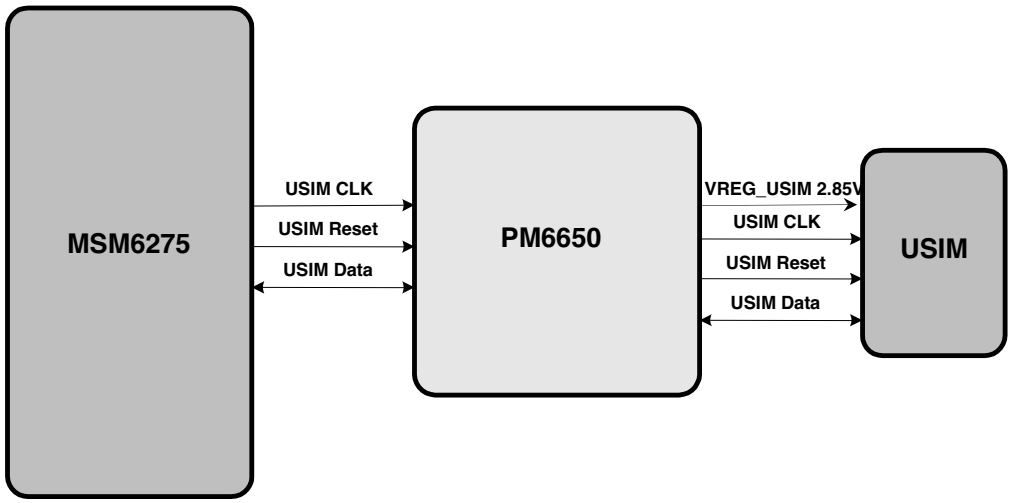


Figure. SIM Interface

3.12.2.2. UART interface

UART signals are connected to MSM GPIO through IO connector with 115.2kbps speed.
And, used for RF calibration and Data download.

GPIO_Map	Name	Note
GPIO_96	UART_RXD	Data_Rx
GPIO_95	UART_TXD	Data_Tx

Table. UART interface

3.12.2.3. USB

The MSM6275 device contains a Universal Serial Bus (USB) interface to provide an efficient interconnect between the mobile phone and a personal computer (PC). The USB interface of the MSM6275 was designed to comply with the definition of a peripheral as specified in USB Specification, Revision 1.1. Therefore, by definition, the USB interface is also compliant as a peripheral with the USB Specification, Revision 2.0. The USB Specification Revision 1.1 defines two speeds of operation, namely low-speed (1.5 Mbps) and full-speed (12 Mbps), both of which are supported by the MSM6275. KS10's USB interface uses the PM6650 internal logic for USB Transceiver.

Name	Note
USB_RCV	Rx_Data to MSM
USB_DAT	Data to/from MSM
USB_SE0	Data to/from MSM
USB_OE_N	Out-Put Enable of Transceiver
USB_VBUS	USB_Power From Host(PC)
USB_D+	USB Data+ to Host
USB_D-	USB Data- to Host

Table. USB signal interface

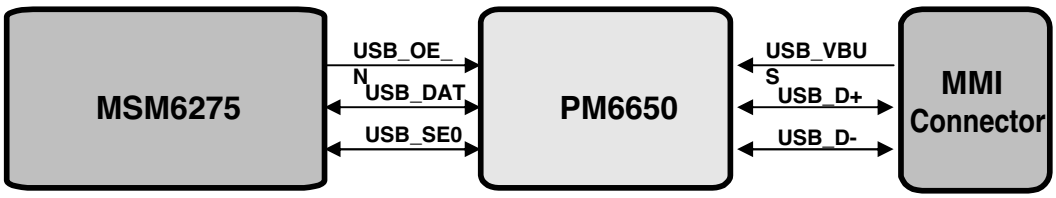


Figure. USB Interface

MSM6275_USB Block **PM6650_USB Block**

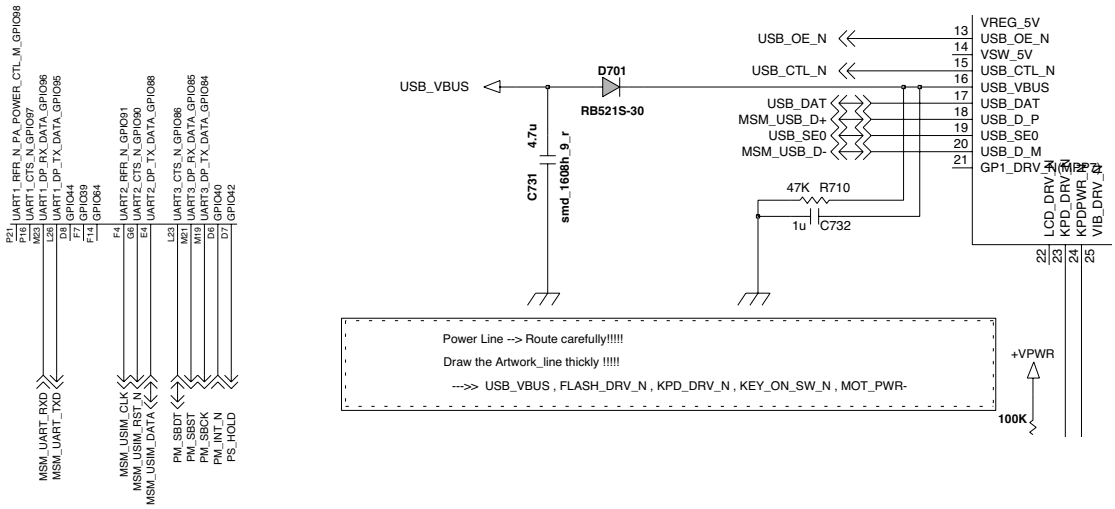


Figure. Schematic of USB block (MSM6275 Side & PM6650 Side)

3.12.2.3. HKADC (House Keeping ADC)

The MSM6275 device has an on-chip 8-bit analog-to-digital converter (HKADC) which is tended to digitize DC signals corresponding to analog parameters such as battery voltage, temperature, and RF power levels. The MSM6275 device has six analog input pins which are multiplexed to the input of the internal HKADC.

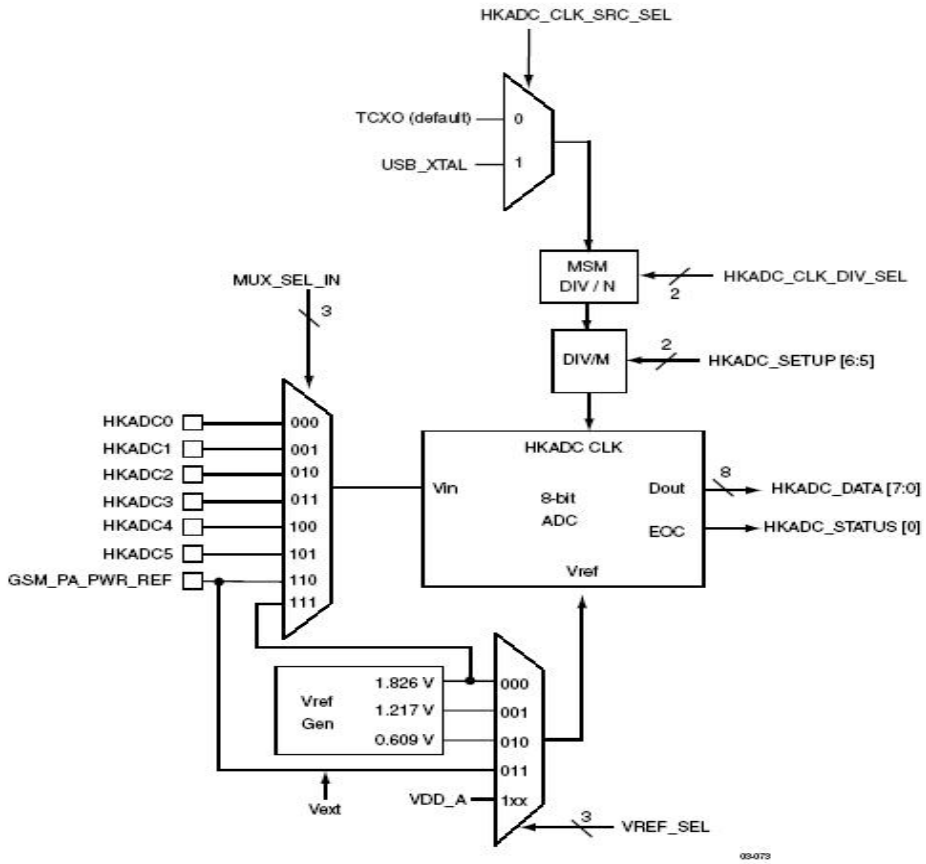


Figure. MSM6275 HKADC Block diagram

ADC Ch#	Signal Name	Note
HKADC0	AMUX_OUT	RF PAM Temperature sensing
HKADC1	VBATT_SENSE	Battery voltage level sensing
HKADC2	HDET1	RF WCDMA PAM Power Level sensing
HKADC3	VBAT_TEMP	Battery Temperature sensing
HKADC4	-	-
HKADC5	-	-

Table. HKADC channel table

3.12.3. Power Block

3.12.3.1. General

MSM6275A, included RF, is fully covered by PM6650-1M(Qualcomm PMIC). PM6650-1M cover the power of MSM6275A, MSM memory, RF block, USIM and TCXO.

Major power components are :

PM6650-1M (U700) : Phone power supply
NUS5530MN (Q701) : External charger supply switching & Main Battery charging control

3.12.3.2. PM6650-1M

The PM6650-1M device (Figure 1-1) integrates all wireless handset power management. The power management portion accepts power from all the most common sources - battery, external charger, adapter, coin cell back-up - and generates all the regulated voltages needed to power the appropriate handset electronics. It monitors and controls the power sources, detecting which sources are applied, verifying that they are within acceptable operational limits, and coordinates battery and coin cell recharging while maintaining the handset electronics supply voltages. Eight programmable output voltages are generated using low dropout voltage regulators, all derived from a common trimmed voltage reference.

A dedicated controller manages the TCXO warm-up and signal buffering, and key parameters (under-voltage lockout and crystal oscillator signal presence) are monitored to protect against detrimental conditions.

MSM device controls and statuses the PM6650-1M IC using a three-line Serial BusInterface(SBI) supplemented by an Interrupt Manager for time-critical information. Another dedicated IC Interface circuit monitors multiple trigger events and controls the power-on sequence.

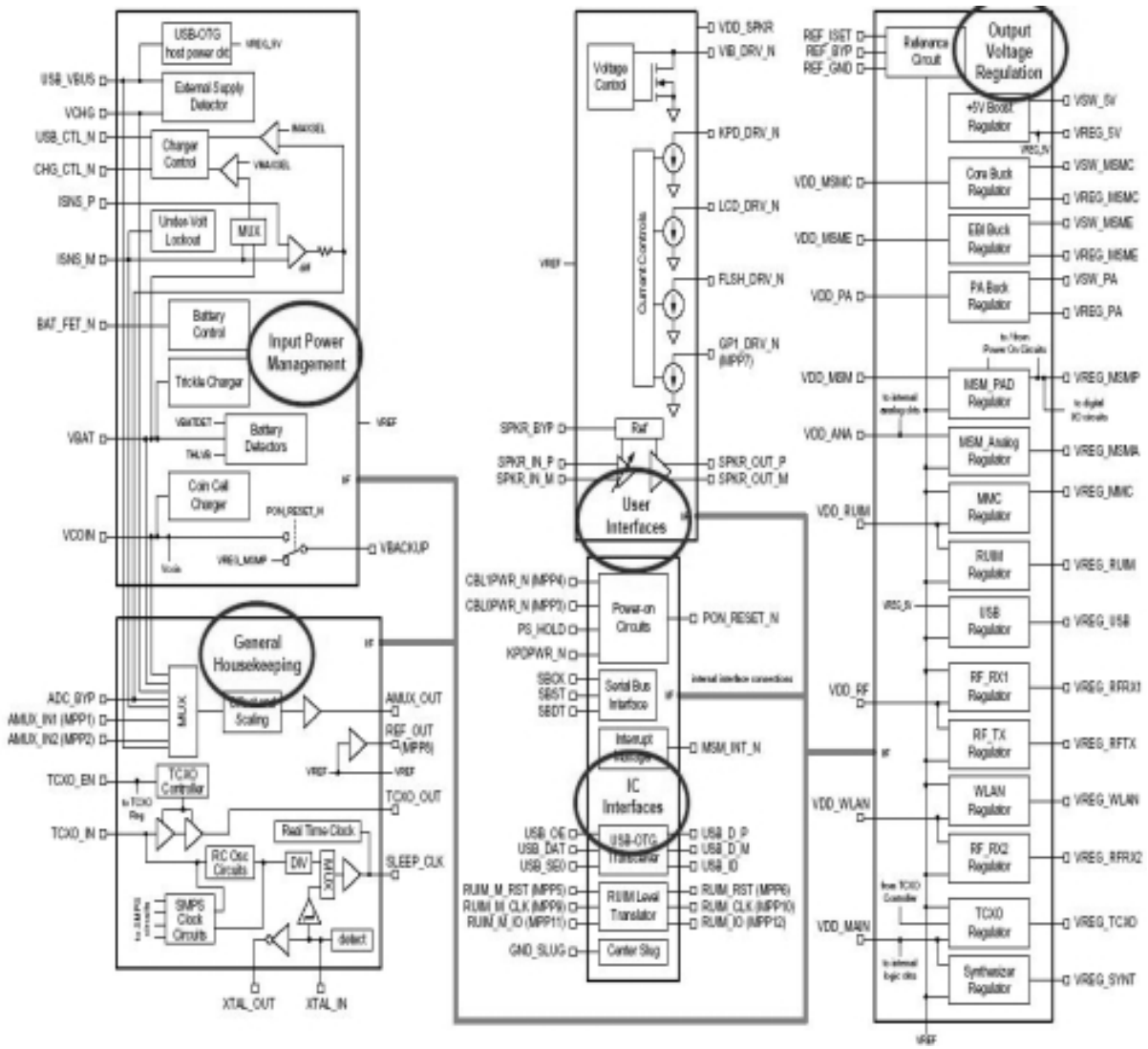
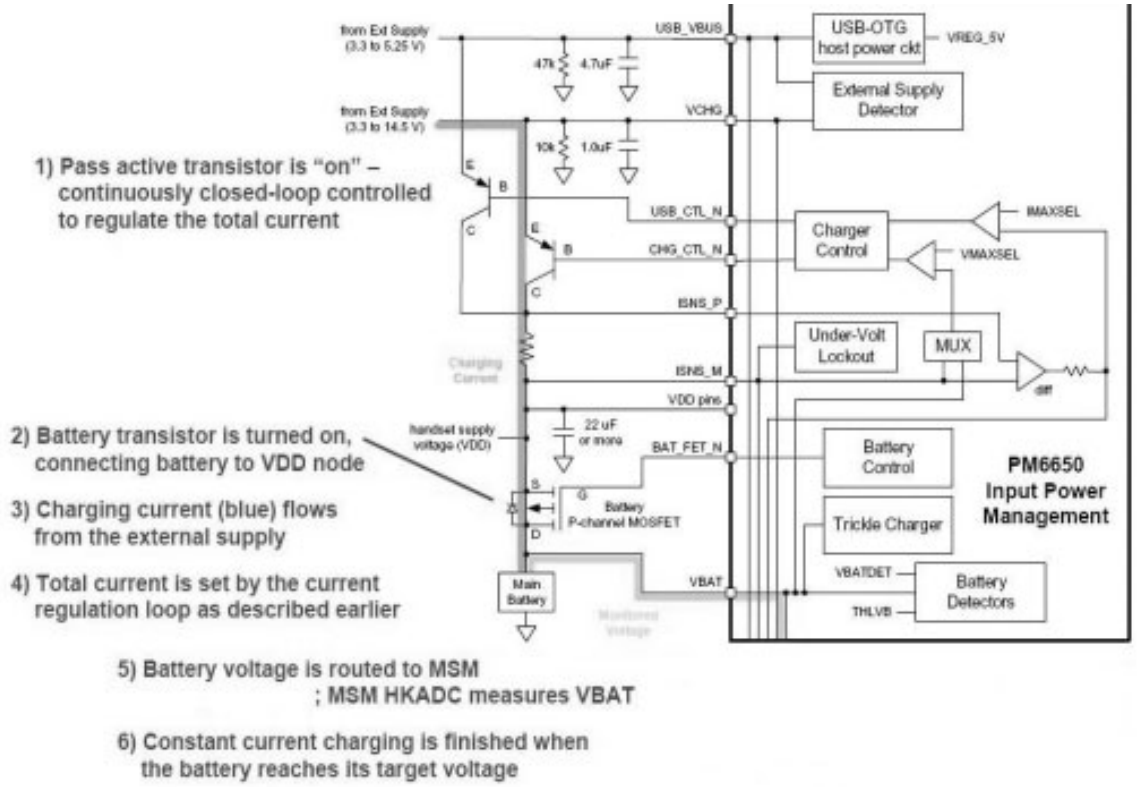


Figure. PM6650-1M Functional Block Diagram

3.12.3.3. Charging control

A programmable charging block in PM6650-1M is used for battery charging. It is possible to set limits for the charging current. The external supply typically connects directly to pin (VCHG). The voltage on this pin (VCHG) is monitored by detection circuitry to ascertain whether a valid external supply is applied or not. For additional accuracy or to capture variations over time, this voltage is routed internally to the housekeeping ADC via the analog multiplexer. PM6650-1M circuits monitor voltages at VCHARGER and ICHARGE pins to determine which supply should be used and when to switch between the two supplies. These pins are connected to the Source (or emitter) and Drain (or collector) contacts of the pass transistor respectively.



KS10 Charging Control block

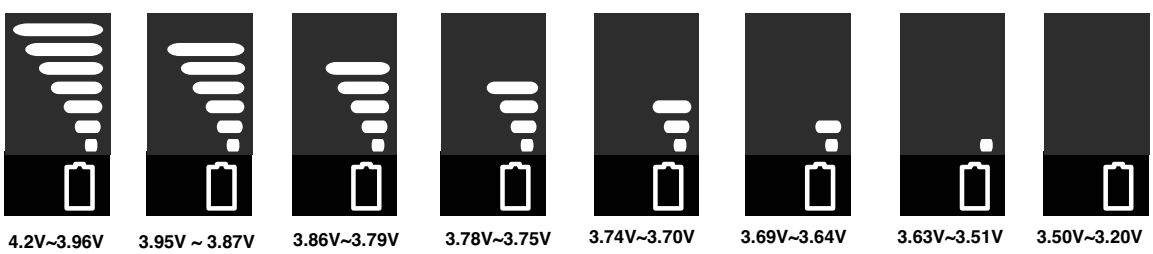
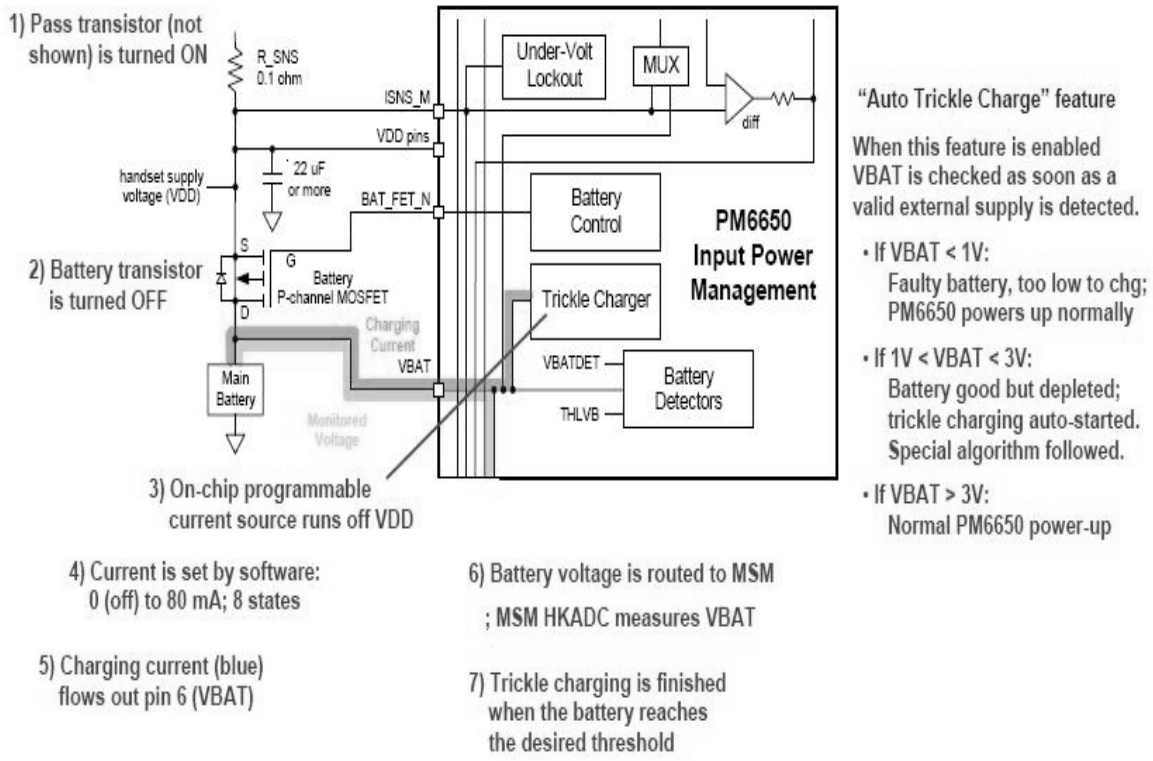


Figure. KS10 Battery Bar Display (Standby condition)

3.12.3.3.1 Trickle charging

Trickle Charging of the main battery, enabled through SBI control and powered from V_{DD}, is provided by the PM6650-1M IC, The trickle charger is on-chip programmable current source that supplies current from V_{DD} to pin (VBAT). Trickle charging can be used for lithium-ion and nickelbased batteries, with its performance specified below (3.2V). The charging current is set to 80mA.

Parameter	Min	Typ	Max	Unit
Trickle Current	60	80	100	mA



3.12.3.3.2 Constant current charging

The PM6650-1M IC supports constant current charging of the main battery by controlling the charger pass transistor and the battery transistor. The constant current charging continues until the battery reaches its target voltage, 4.2V.

3.12.3.3.3 Constant voltage charging

Constant voltage charging begins when the battery voltage reaches a target voltage, 4.2V. The end of constant voltage charging is commonly detected 10% of the full charging current (60mA)

- Charging Method : CC & CV (Constant Current & Constant Voltage)
- Maximum Charging Voltage : 4.2V
- Maximum Charging Current : 650mA
- Nominal Battery Capacity : 950 mAh
- Charger Voltage : 4.8V
- Charging time : Max 3 h (Except time trickle charging)
- Full charge indication current (icon stop current) : 60mA
- Low battery POP UP : 3.63V , 3.50V
- Low battery alarm interval : warning tone once only
- Cut-off voltage : 3.20V

3.13. Audio and sound

3.13.1. Overview of Audio & Sound & BT path

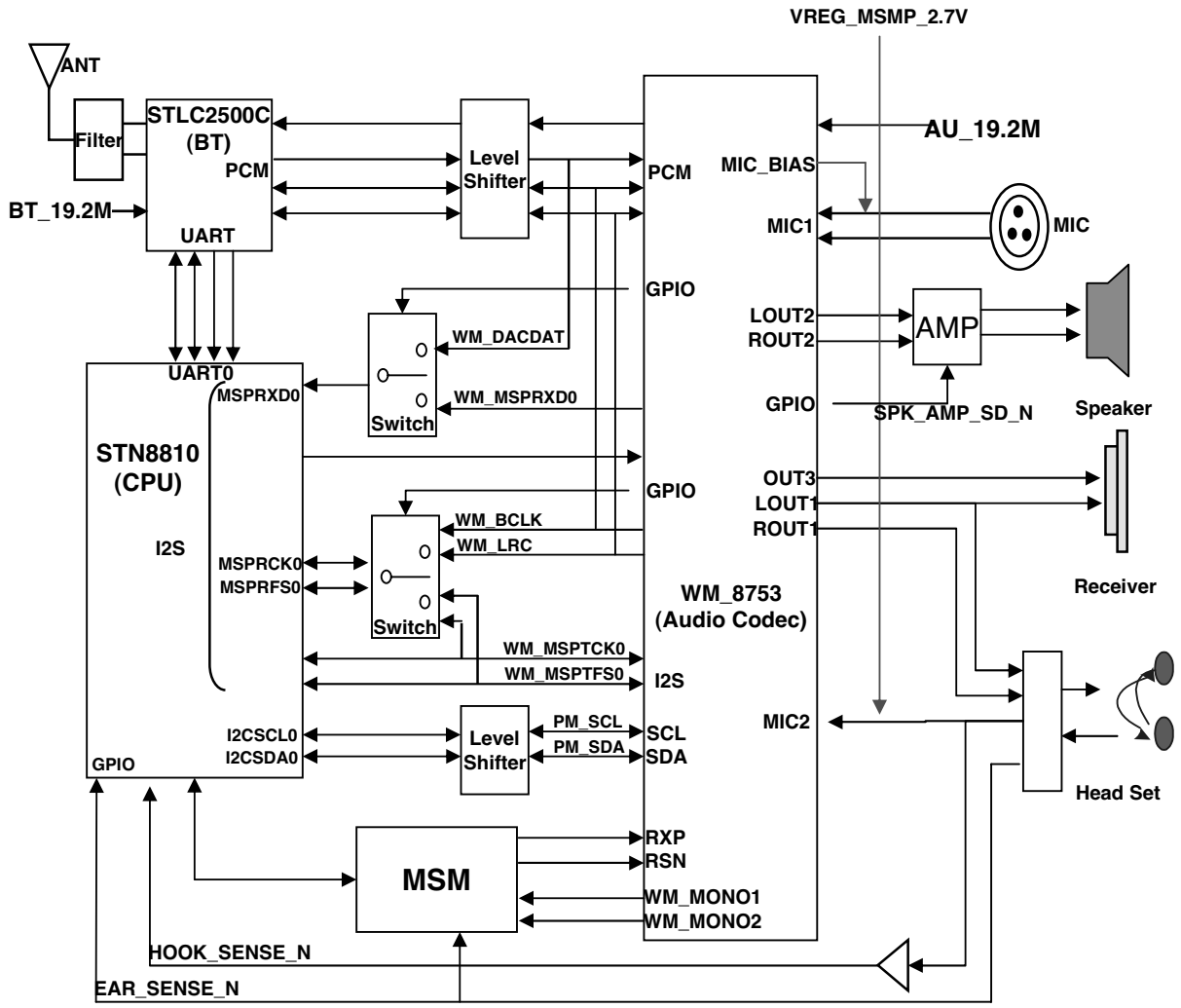


Figure. Block diagram ofaAudio &sSound path

3.13.2. Audio signal processing & interface

3.13.2.1. MSM6275A audio interface

The MSM6275 device integrates a wideband audio CODEC into the mobile station modem. The wideband codec allows the MSM device to support stereo music/ringer Melody applications in addition to the 8 kHz voice band applications on the forward link. In the audio transmit path, the device operates as 13-bit linear converter with software selectable 8 kHz and 16 kHz sampling rate. In the audio receive path, the device operates as a software selectable 13-bit or 16-bit linear converter with software selectable 8 kHz, 16 kHz, 22.05 kHz, 24 kHz, 32 kHz, 44.1 kHz, or 48 kHz sampling rate. Through software, the Rx path can be configured as either a mono or stereo output.

The integrated CODEC contains all of the required conversion and amplification stages for the audio front end. The CODEC operates as a 13-bit linear CODEC with the transmit (Tx) and receive (Rx) filters designed to meet ITU-T G.712 requirements. The CODEC includes a programmable sidetone path for summing a portion of the Tx audio into the Rx path. An on-chip Voltage/Current reference is provided to generate the precise voltages and currents required by the CODEC.

The interface supports two differential microphone inputs and a differential auxiliary input, each of which can be configured as single-ended if desired. In addition, the interface supports one differential earphone output, one single-ended earphone output, and one differential auxiliary output or two single-ended line outputs.

The CODEC is configured through the QDSP4000 command types and is not directly controlled by the microprocessor. The CODEC configuration command is sent to the QDSP4000 and then the QDSP4000 executes the command and configures the CODEC. Data is exchanged between the codec interface and the QDSP4000 through its DMA interface. The QDSP4000 uses the Ex_DMA_4 channel for reading data from the codec and uses the Ex_DMA_5 channel to transfer data to the codec. The CODEC interface is shown in more detail in Figure below.

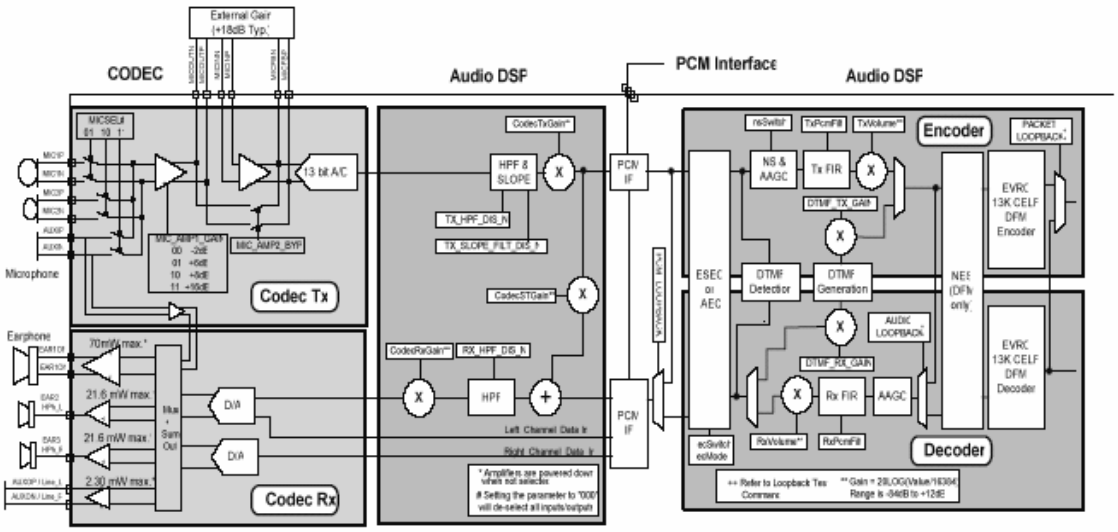


Figure. Detailed diagram of MSM6275 audio interface

3.13.2.2. STn8810 audio interface

Smart Audio Accelerator (SAA)

This high-performance block performs an audio hardware accelerator based on a programmable audio DSP with 24-bit data path and ultra low power implementation.

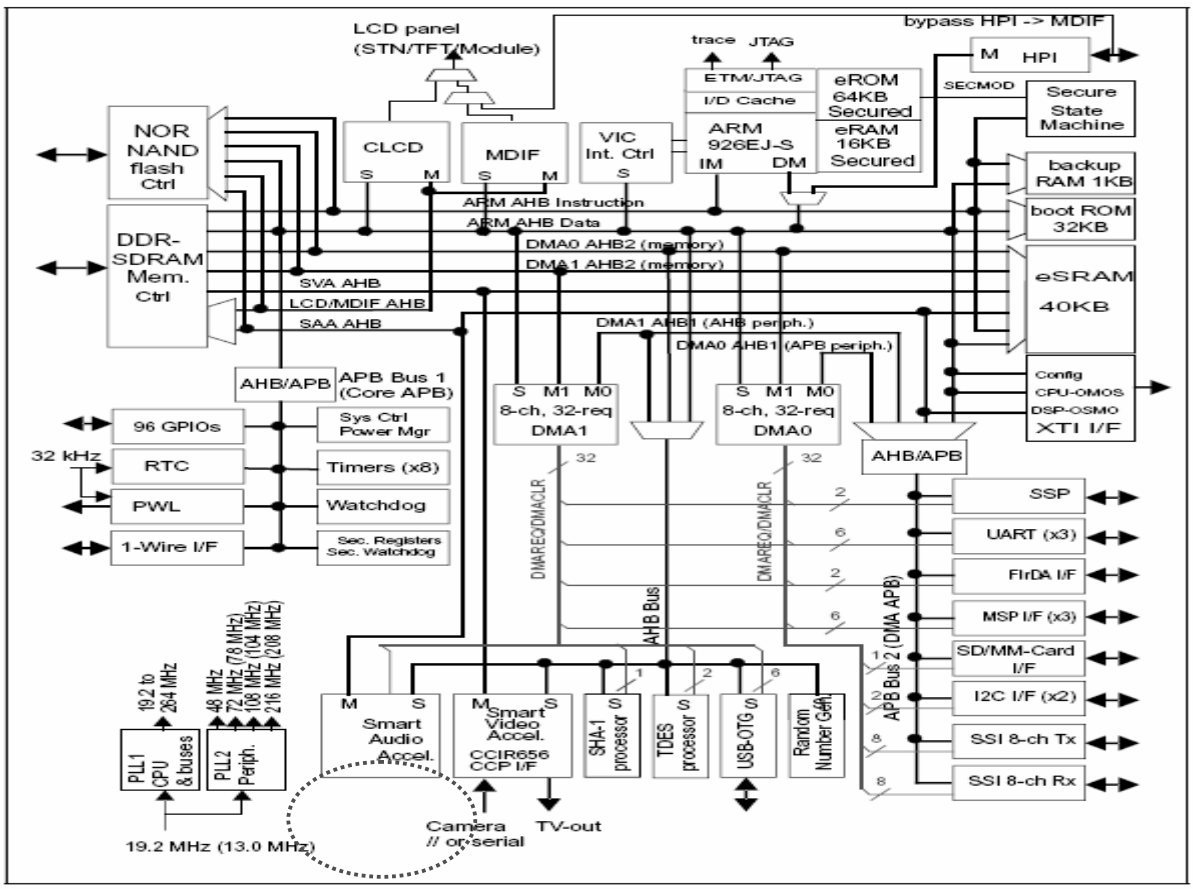


Figure 1 •STn8810 block diagram

Figure. Detailed diagram of STn8810 audio interface

3.13.2.3. WM8753L audio interface

The WM8753L is a low Power, high quality stereo Codec with integrated Voice CODEC designed for portable digital telephony applications such as mobile phone, or headset with Hi-Fi playback capability.

The device integrates dual interfaces to two differentially connected microphones, and includes drevers for speakers, headphone and earpiece. External component requirements are reduced as no separate microphone or headphone amplifiers are required.

Advanced on-chip digital signal processing performs tone control, Bass Boost and automatic level control for the microphone or line input through the ADC.

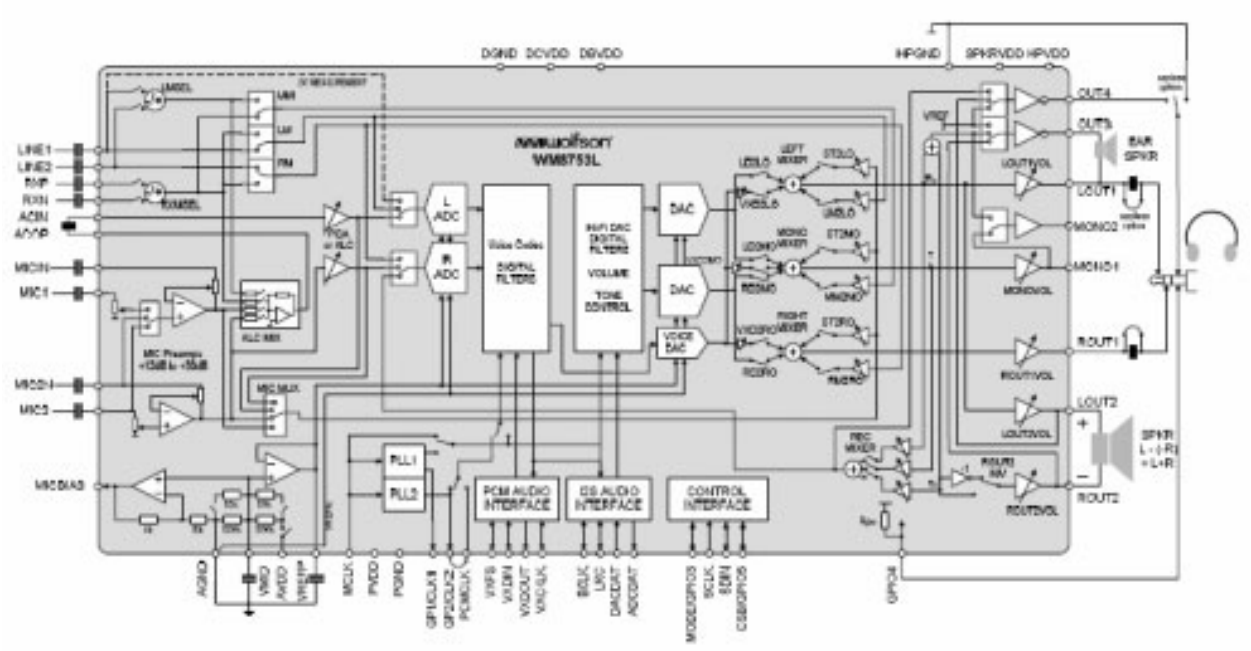
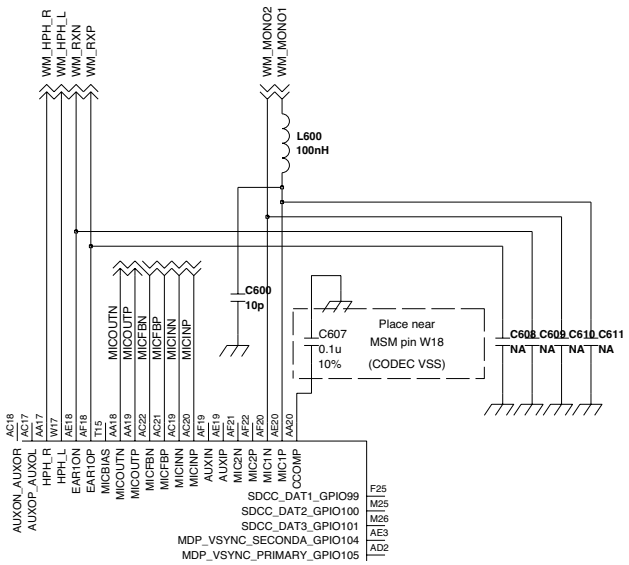
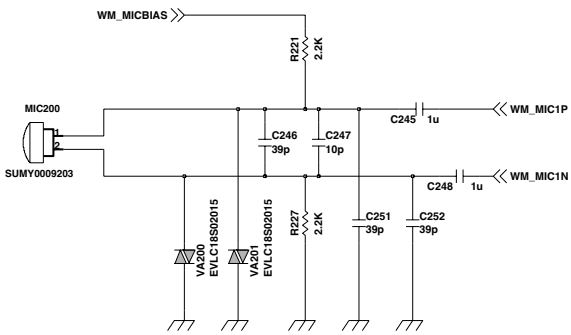


Figure. Detailed diagram of WM8753L audio interface

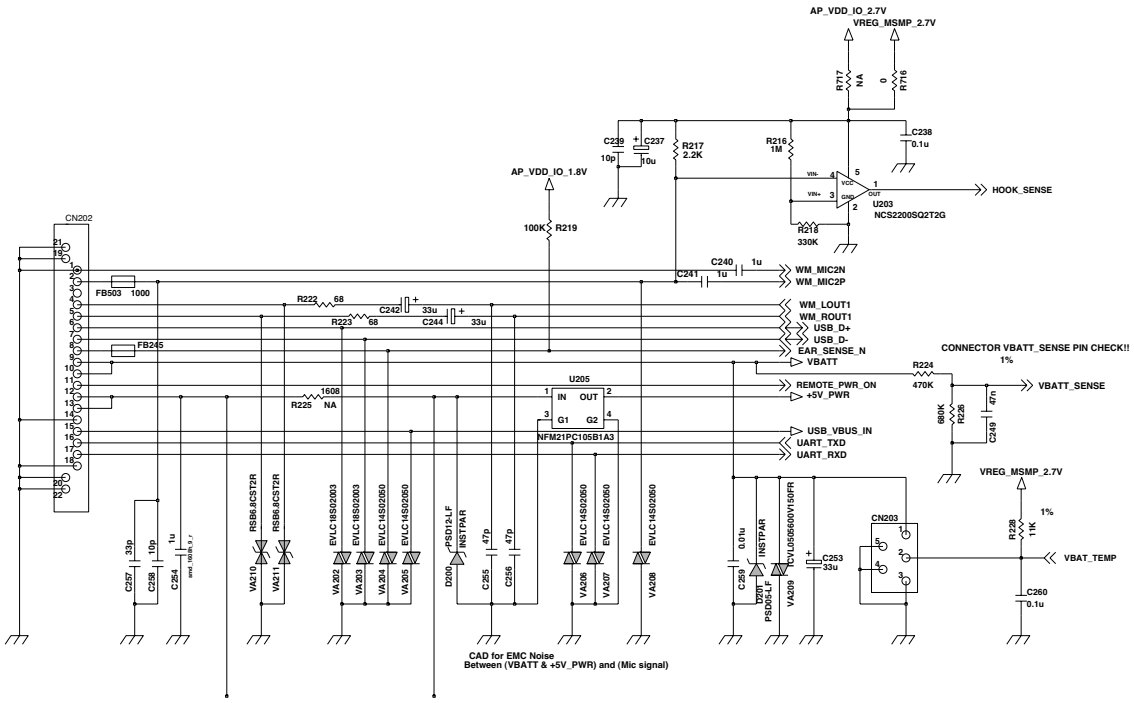
MSM6275A BLK



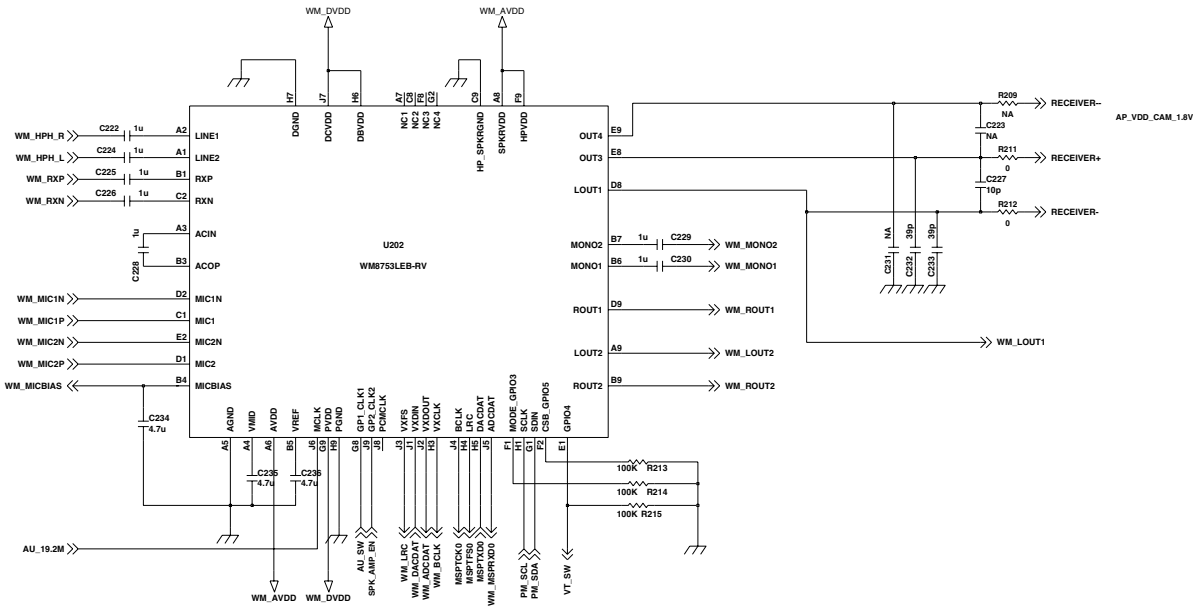
Handset main MIC BLK



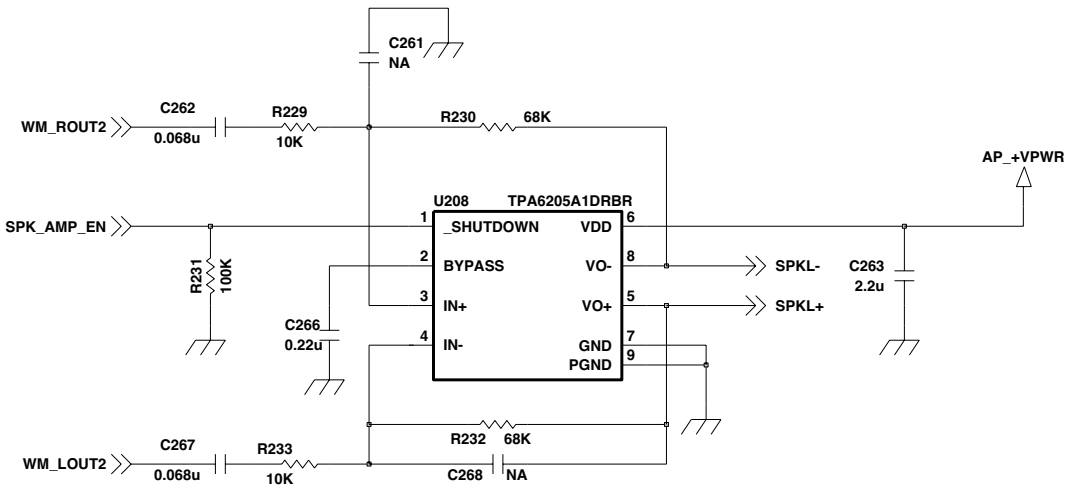
Head Set Jack BLK



Audio Codec(WM8753) BLK



Audio Amp for loud Speaker



SPEAKER AMP

3.14. Camera interface

KS10 has two cameras : 2M Pixel CMOS and VGA Pixel CMOS Camera Below figures shows the camera board to board connector and camera I/F signal.

3.14.1. Mega Camera Interface

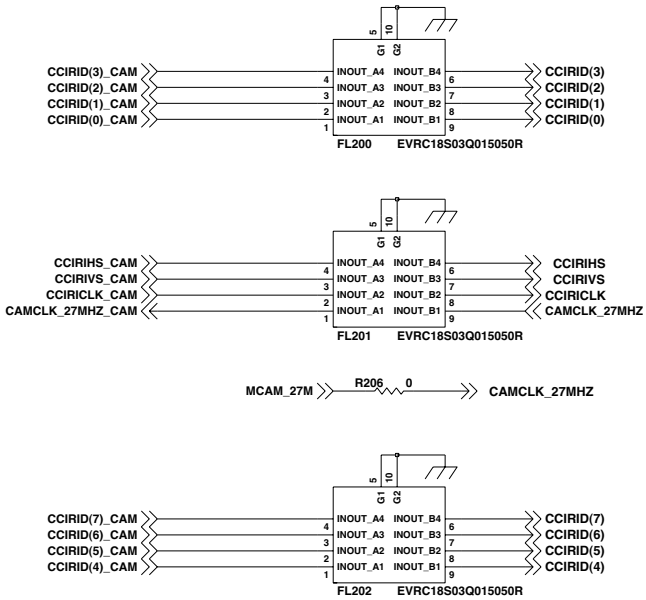


Figure. Schematic of 2 Mega Camera EMI/ESD filter I/F

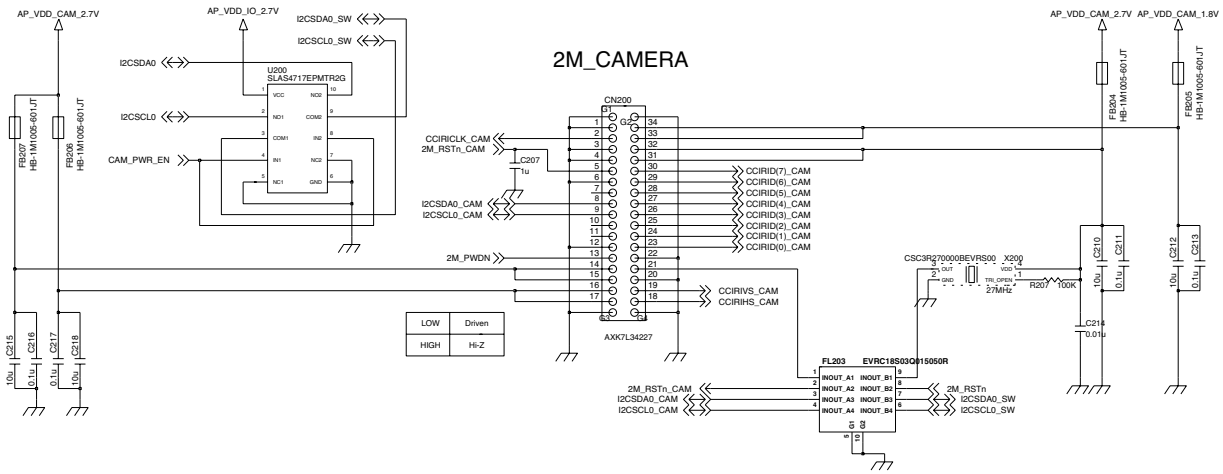


Figure. Schematic of 2 Mega Camera Board to Board Connector

No	Name	Port	Note
1	GND	GND	GND
2	PCLK	O	Pixel Clock
3	GND	GND	Ground
4	GND	GND	Ground
5	RESET	I	Initializes sensor, Active Low
6	GND	GND	Ground
7	NC	NC	Non-connection
8	SDA	I/O	Data for two-wire serial interface
9	SCK	I	Clock for two-wire serial interface
10	NC	NC	Non-connection
11	NC	NC	Non-connection
12	GND	GND	Ground
13	PDOWN	I	Power down mode, active High
14	LVDD 2.8V	P	Actuator Voltage
15	LVDD 2.8V	P	Actuator Voltage
16	AVDD 2.8V	P	Analog Voltage
17	AVDD 2.8V	P	Analog Voltage
18	HSYNC	O	Horizontal Synchronous signal
19	VSYNC	O	Vertical Synchronous signal
20	GND	GND	Ground
21	CLKIN	I	Master clock
22	GND	GND	Ground
23	YUV0	O	Image data output
24	YUV1	O	Image data output
25	YUV2	O	Image data output
26	YUV3	O	Image data output
27	YUV4	O	Image data output
28	YUV5	O	Image data output
29	YUV6	O	Image data output
30	YUV7	O	Image data output
31	IOVDD	P	Digital I/O Voltage
32	IOVDD	P	Digital I/O Voltage
33	DVDD 1.8V	P	Digital Core Voltage
34	DVDD 1.8V	P	Digital Core Voltage

Table. Interface between 2M Camera Module and Main Board (in camera module)

The 2MCamera module is connected to main board with 34pin Board to Board connector (AXK8L34125). Its interface is dedicated camera interface port in STN8810. The camera port supply 24MHz master clock to camera module and receive 40.078MHz pixel clock (max.15fps), vertical sync signal, horizontal sync signal, reset signal and 8bits data from camera module.

The camera module is controlled by I2C port from STN8810.

3.14.2. VGA Camera Interface

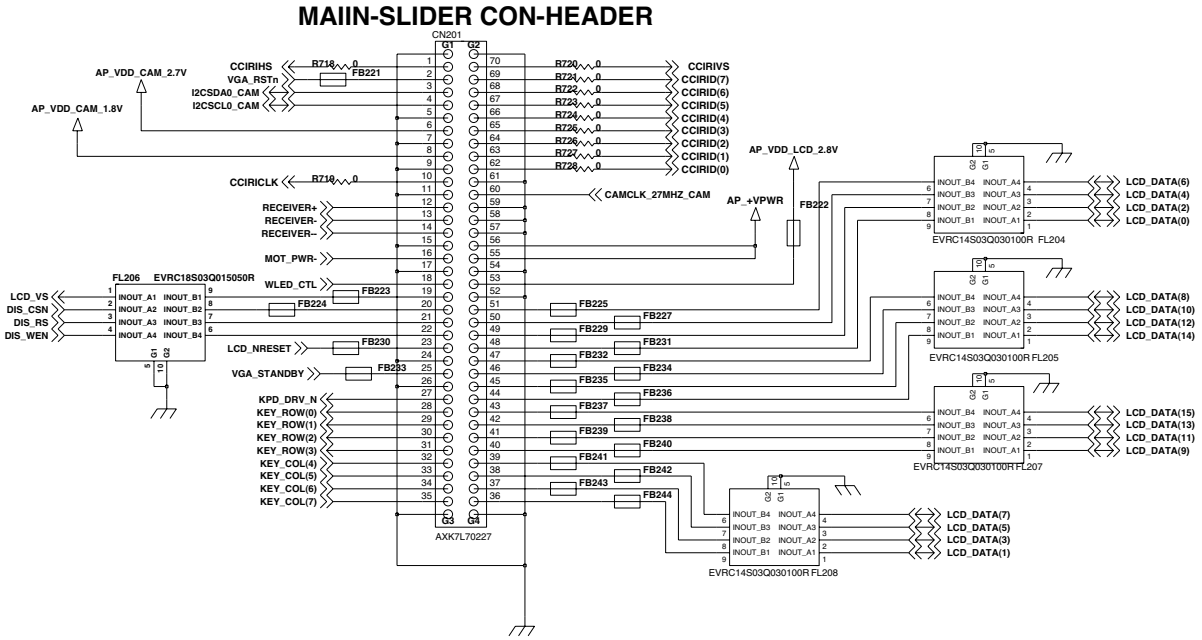


Figure. Schematic of Main slider FPCB B to B connector (in main BD)

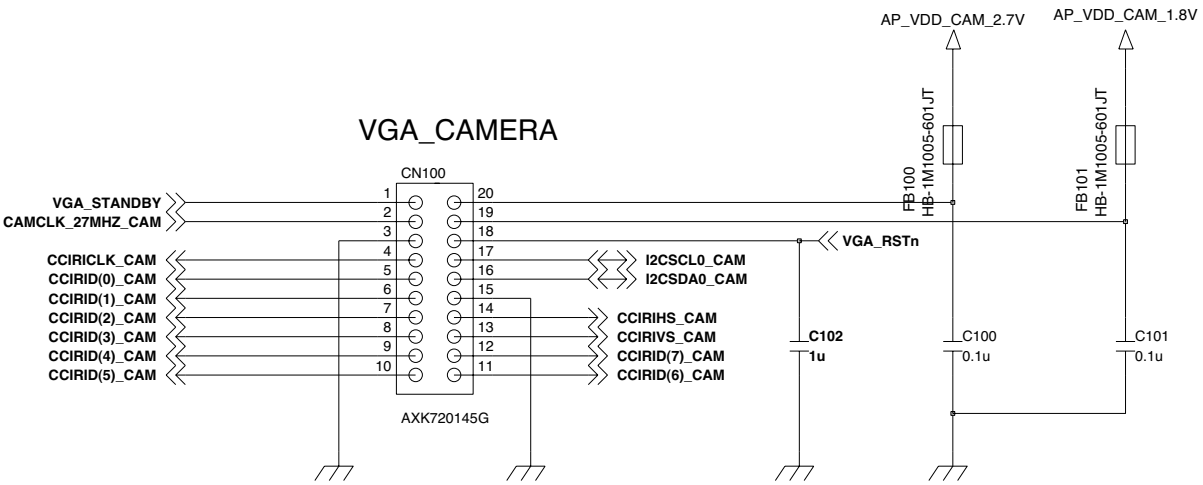


Figure. Schematic of VGA Camera Board to Board Connector (in main slider FPCB)

The VGA Camera module is connected to main slider FPCB with 20pin Board to Board connector(AXK820145). The main slider FPCB is connected to main board with 70pin board to board connector.

Its interface is dedicated camera interface port in STN8810. The camera port supply 24MHz master clock to camera module and receive 13.5MHz pixel clock (max. 15fps), vertical sync signal, horizontal sync signal, reset signal and 8bits data from camera module.

The camera module is controlled by I2C port from STN8810.

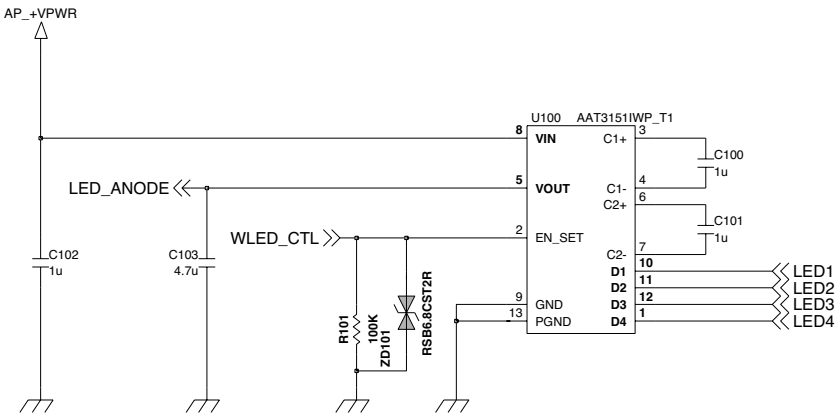
No	Name	Port	Note
1	ENABLE	I	Active ëHighí
2	MCLK	I	Master Clock
3	GND	GND	Ground
4	PCLK	O	Video Output Clock D[0:7]
5	D0	O	Image Data[0]
6	D1	O	Image Data[1]
7	D2	O	Image Data[2]
8	D3	O	Image Data[3]
9	D4	O	Image Data[4]
10	D5	O	Image Data[5]
11	D6	O	Image Data[6]
12	D7	O	Image Data[7]
13	VSYNC	O	Vertical Synchronization
14	HSYNC	O	Horizontal Synchronization
15	GND	GND	Ground
16	SDA	I/O	Data for two wire serial interface
17	SCL	I	Clock for two wire serial interface
18	RESET	I	Reset initializes sensor Active Low
19	DVDD	P	Digital core circuit power supply voltage
20	AVDD & IOVDD	P	Analog core circuit power supply voltage & Digital I/O circuit power supply voltage

Table. Interface between Camera Module and Main Board (in camera module)

3.14.3. LCD backlight / Camera LDO

U100(in SUB board, AAT3151) is a charge pump. U301(in main board, BH18LB1WHFB) supply a 1.8V power of mega camera and VGA camera. U303(in main board, MIC5219-2.7YM5) supply a 2.7V power of mega camera and VGA camera.

These parts are controlled by GPIOs of STN8810.



LCD_Backlight driver

Figure. Schematic of charge pump

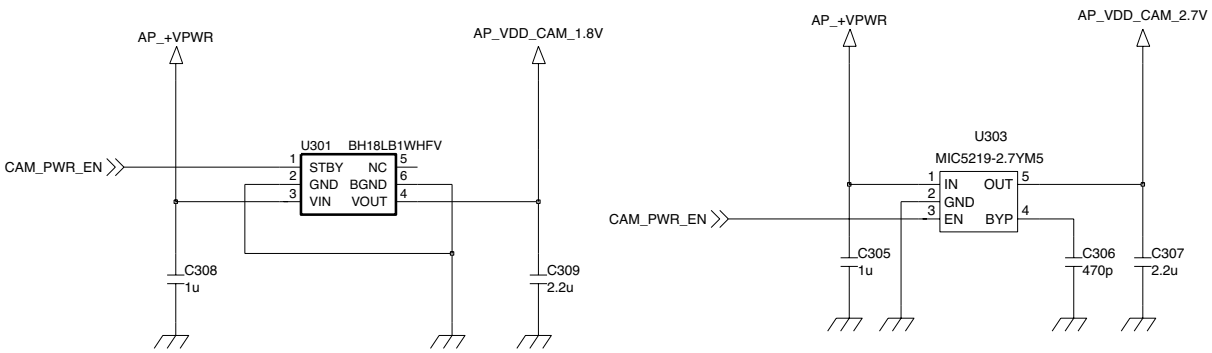


Figure. Schematic of camera LDO

3.14.4. LCD module

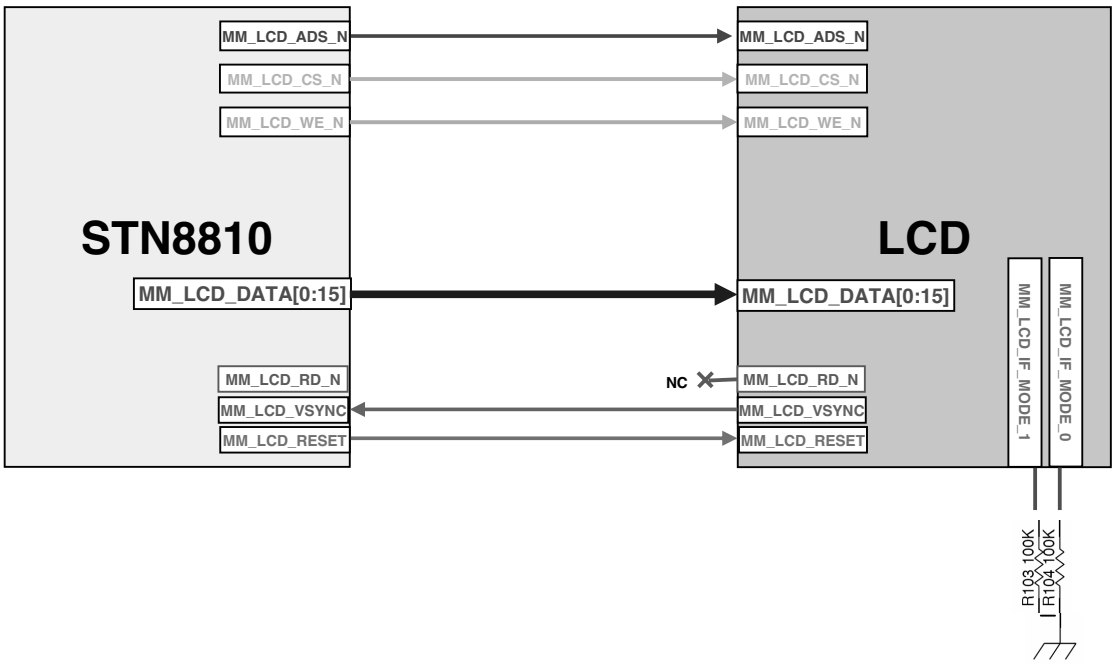


Figure. LCD I/F Block Diagram

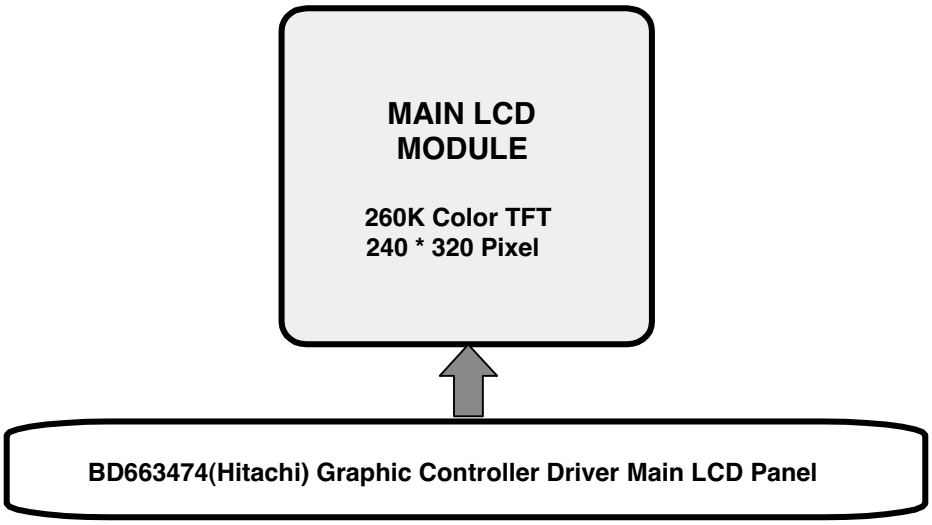


Figure. LCD Module

3.14.5. Display

LCD module is connected to SUB board with 35-pin zip connector(XF2B-3545-31A).

The LCD is controlled by 16-bit in STN8810.

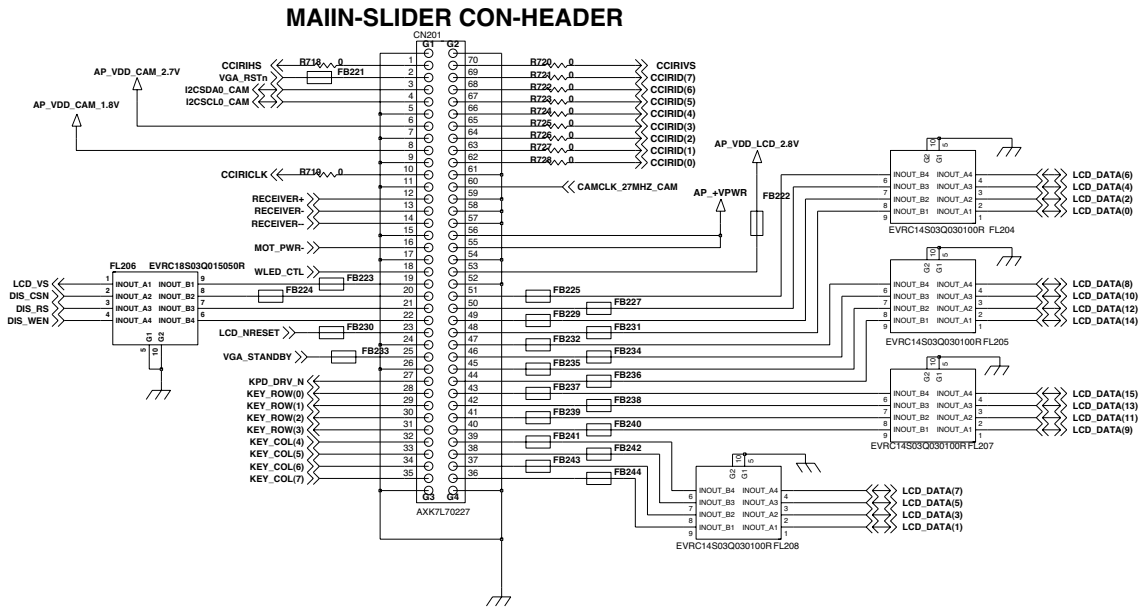


Figure. Schematic of Main slider FPCB B to B connector (in main BD)

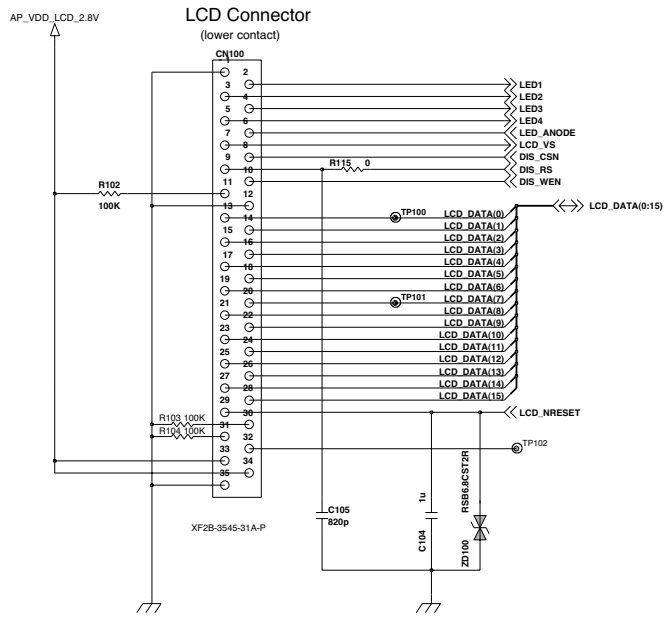


Figure. Schematic of LCD connector (in SUB board)

No	Name	Port	Note
1	GND	GND	Ground
2	LED(CA)	-	Ground for LED
3	LED(CA)	-	Ground for LED
4	LED(CA)	-	Ground for LED
5	LED(CA)	-	Ground for LED
6	LED(AN)	-	Power Supply for LED
7	VSYNC-OUT	O	Frame Head Pulse Signal
8	CS	I	Chip Select
9	RS	I	Register Select
10	WR	I	Write Strobe
11	RD	I	Read Strobe
12	GND	GND	Ground
13	DB0	I/O	Data Bus (Instruction & Display Data)
14	DB1	I/O	Data Bus (Instruction & Display Data)
15	DB2	I/O	Data Bus (Instruction & Display Data)
16	DB3	I/O	Data Bus (Instruction & Display Data)
17	DB4	I/O	Data Bus (Instruction & Display Data)
18	DB5	I/O	Data Bus (Instruction & Display Data)
19	DB6	I/O	Data Bus (Instruction & Display Data)
20	DB7	I/O	Data Bus (Instruction & Display Data)
21	DB8	I/O	Data Bus (Instruction & Display Data)
22	DB9	I/O	Data Bus (Instruction & Display Data)
23	DB10	I/O	Data Bus (Instruction & Display Data)
24	DB11	I/O	Data Bus (Instruction & Display Data)
25	DB12	I/O	Data Bus (Instruction & Display Data)
26	DB13	I/O	Data Bus (Instruction & Display Data)
27	DB14	I/O	Data Bus (Instruction & Display Data)
28	DB15	I/O	Data Bus (Instruction & Display Data)
29	RESET	I	Reset
30	IM2	I	Interface mode select
31	IM1	I	Interface mode select
32	MID(HIGH)	O	Maker ID (HI : VCC2 level)
33	VCC1	P	Power Supply for Analog Circuit
34	VCC2	P	Interface I/O Power
35	GND	GND	Ground

Table. Interface between 2M Camera Module and Main Board (in camera module

3.15 Bluetooth

KS10 supported bluetooth, which is possible to data file transfer, BT headset call.

CPU (STn8810) interfaces with bluetooth one chip module (U401) which includes RF and baseband.

The STLC2500C is a single chip ROM-based Bluetooth solution for applications requiring integration up to HCI level.

The STLC2500C's main interfaces are UART for HCI transport between CPU (STn8810) and bluetooth module, PCM for voice between audio codec.(WM8753) and bluetooth module and GPIOs for control purposes. Voice data is transferred to CPU(STn8810) through audio codec.(WM8753).

The radio has been designed specifically for single chip requirements and for low power consumption. Radio signal from bluetooth antenna (ANT400) is transferred to bluetooth module through BALUN filter (FL400). Bluetooth module has its' own oscillator (X400, 27MHz) for normal operation and use sleep clock(32.768KHz) from PM6650, PMIC of MSM 6275.

■ Bluetooth™ specification compliance: V1.2

■ Transmit Power : Power Class2

■ Ultra low power architecture with 3 different low power levels:
- Sleep Mode
- Deep Sleep Mode
- Complete Power Down Mode

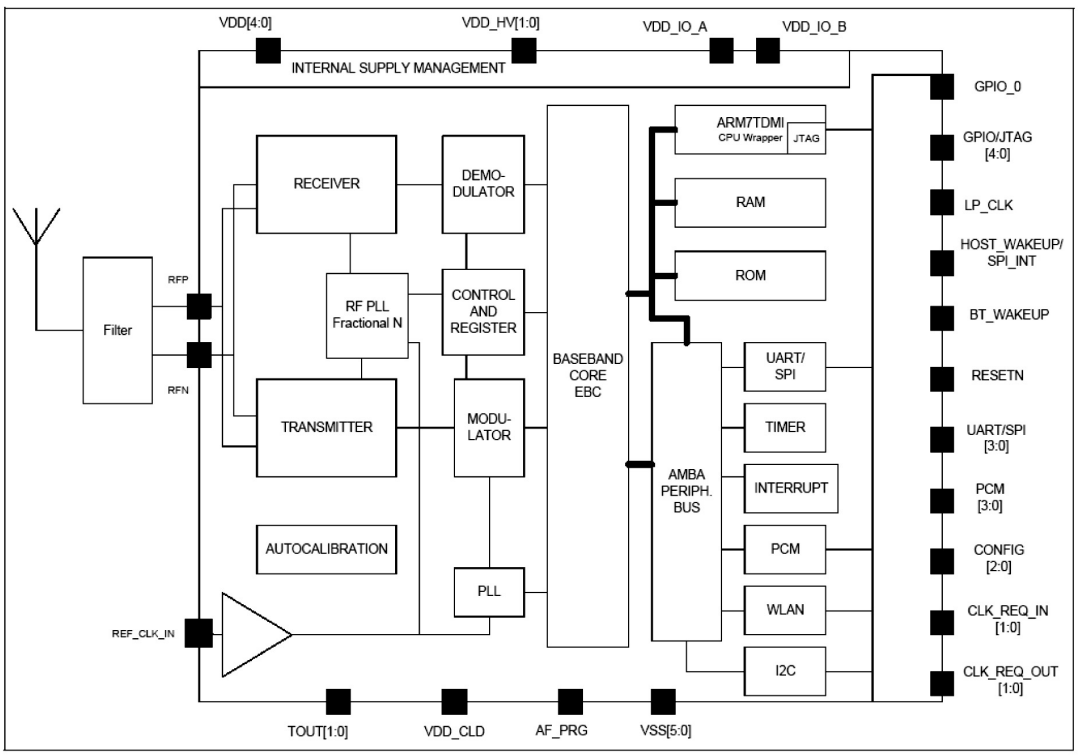


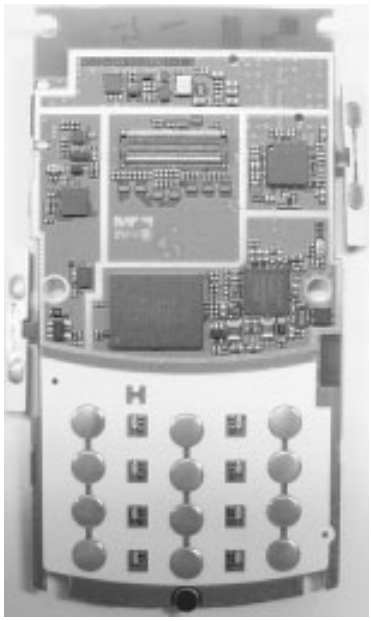
Figure. Diagram of STLC2500C

3.16 Main Features

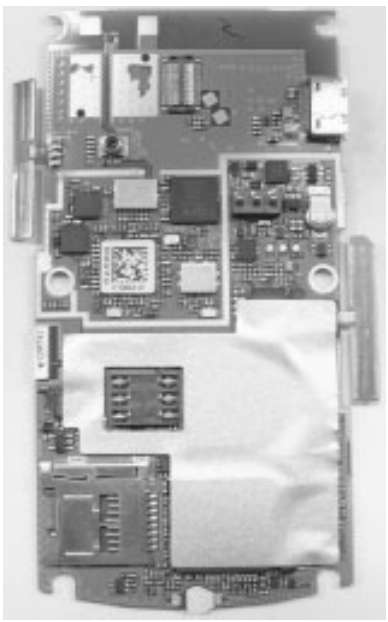
3.16.1. Main features of KS10

- Slide Type
- WCDMA(2100) + GSM(900,1800) + PCS(1900) Triple mode
- Main LCD: 320*240, 262K (2.4”)
- 2.0M Pixel CMOS Camera
- VGA CMOS Camera
- ϕ17 speaker
- Stereo Headset
- Video telephony in WCDMA with camera
- HSDPA up to 1.8Mbps
- Loud Speaker phone(in GSM and WCDMA)
- 64 Poly Sound
- MP3/AAC/WMA decoder and play
- MPEG4 encoder/decoder and play/save
- H.263 decoder
- JPEG en/decoder
- Support Bluetooth, USB
- 104 x 52 x 18.9 mm
- 950mAh hard pack

2. Main Components of KS10

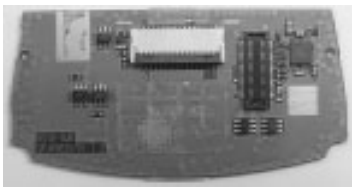


MAIN Top Side



MAIN Bottom Side

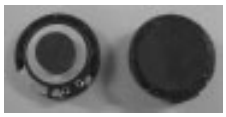
KEY Top Side



KEY Bottom Side

VGA camera

1.3M camera



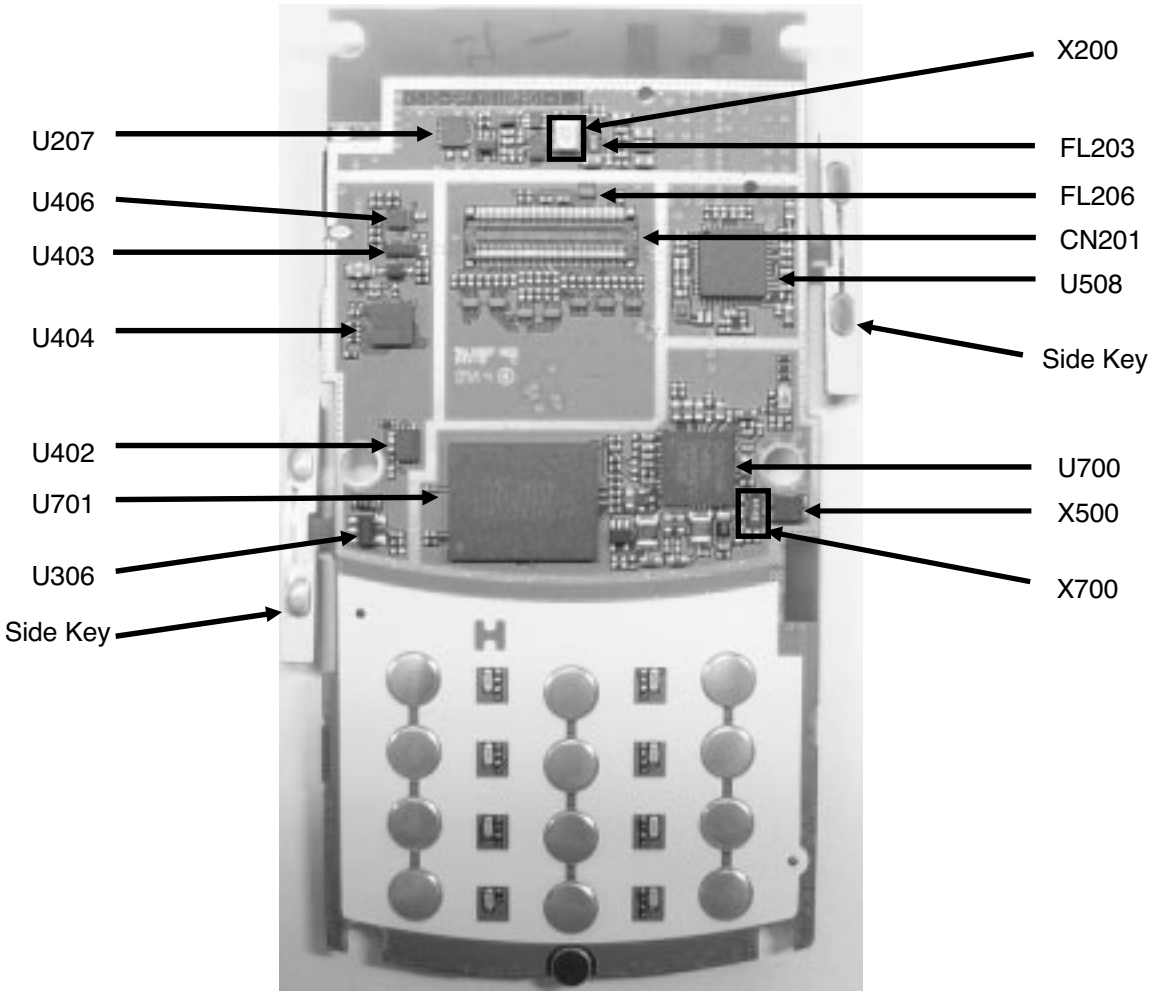
Speaker

Intenna

LCD FPCB

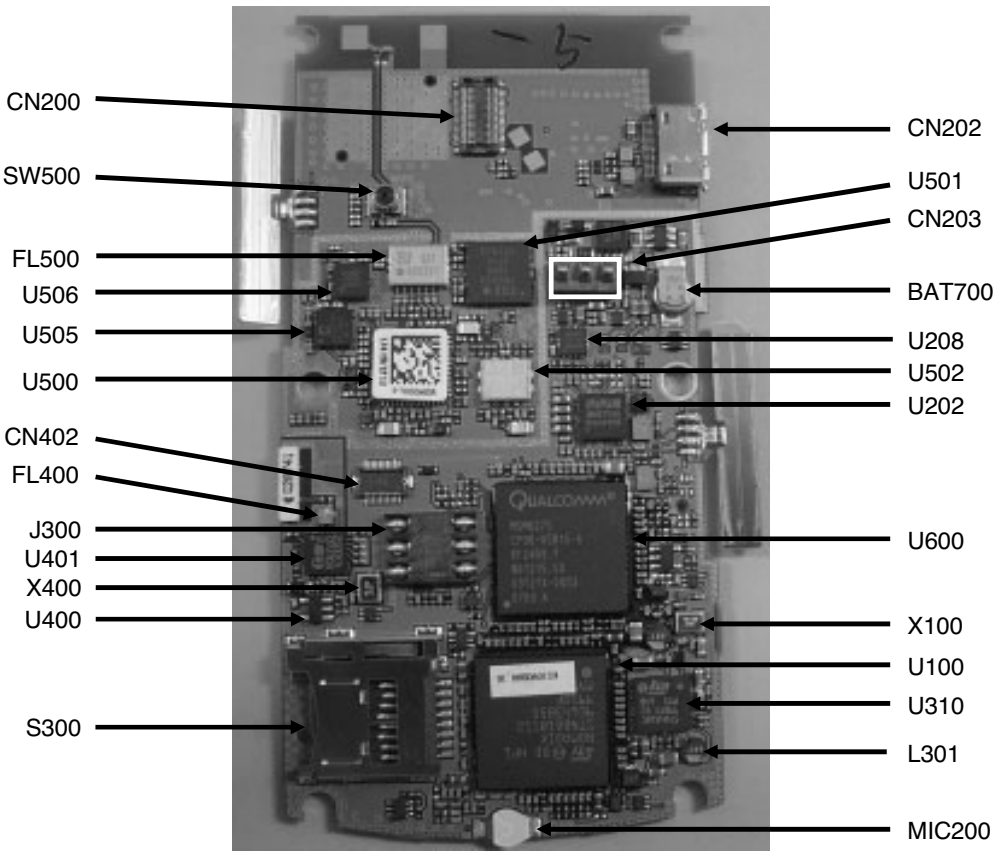
LCD

2. 1 Main Top Side



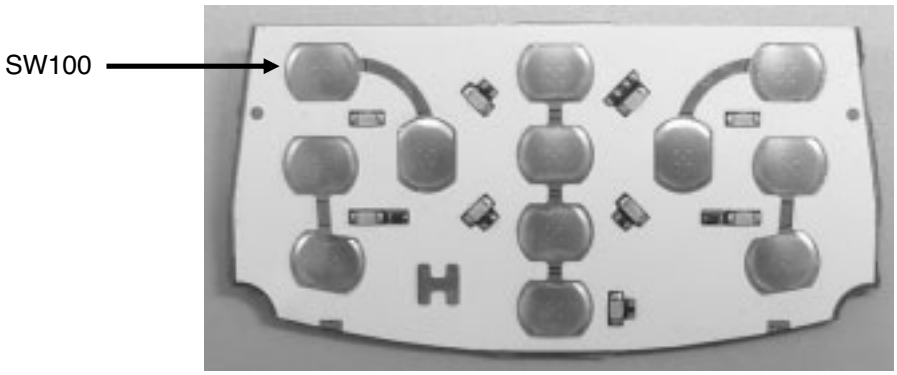
Reference	Description	Reference	Description
U207	over voltage protection IC	X200	27MHz OSCILLATOR
U406	Analog Switch	FL203	EMI_ESD FILTER
U403	Analog Switch Multiplexer	FL206	EMI_ESD FILTER
U404	Key Coder IC	CN201	B To B CONNECTOR
U402	hall-effect switch IC	U508	RF Receiver(RFR6250E)
U701	MCP Memory	U700	PMIC for MSM
U306	LDO Regulator	X500	TCXO 19.2MHz
-	-	X700	TCXO 32.768kHz

2.2. Main Bottom Side

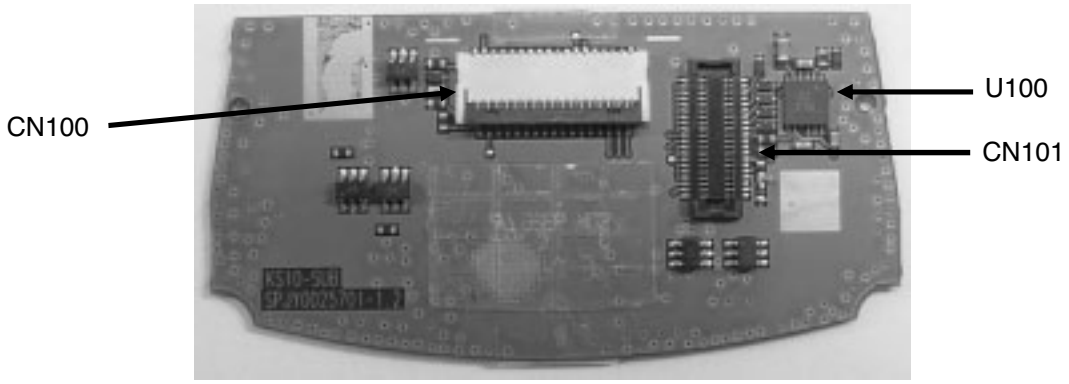


Reference	Description	Reference	Description
CN200	B To B CONNECTOR	CN202	Connector(I/O, Ear jack, Power)
SW500	RF SWITCH CONNECTOR	U501	GSM/EDGE Quadband PAM
CN402	JTAG-JIG-FPCB-CON	CN203	Battery Connector
FL500	FILTER, SAPERATOR	BAT700	Back up Battery
U506	DUPLEXER, GSM	U208	AUDIO AMPLIFIER
U505	PAM _power amplifier module	U502	Voltage Controlled Oscillator
U500	RF Transceiver (RTR6250D)	U202	Audio Codec.
FL400	SAW FILTER _BPF	U600	MSM6275 (Modem BB Chip)
J300	USIM Connector	X100	19.2MHz Oscillator
U401	Bluetooth Single Chip	U100	STN8810S12B2V1 (CPU)
X400	19.2MHz Oscillator	U310	PMIC for CPU
U400	LDO Regulator	L301	Power Inductor
S300	Micro-SD CONNECTOR	MIC200	Microphone

2.3. KEY Top Side

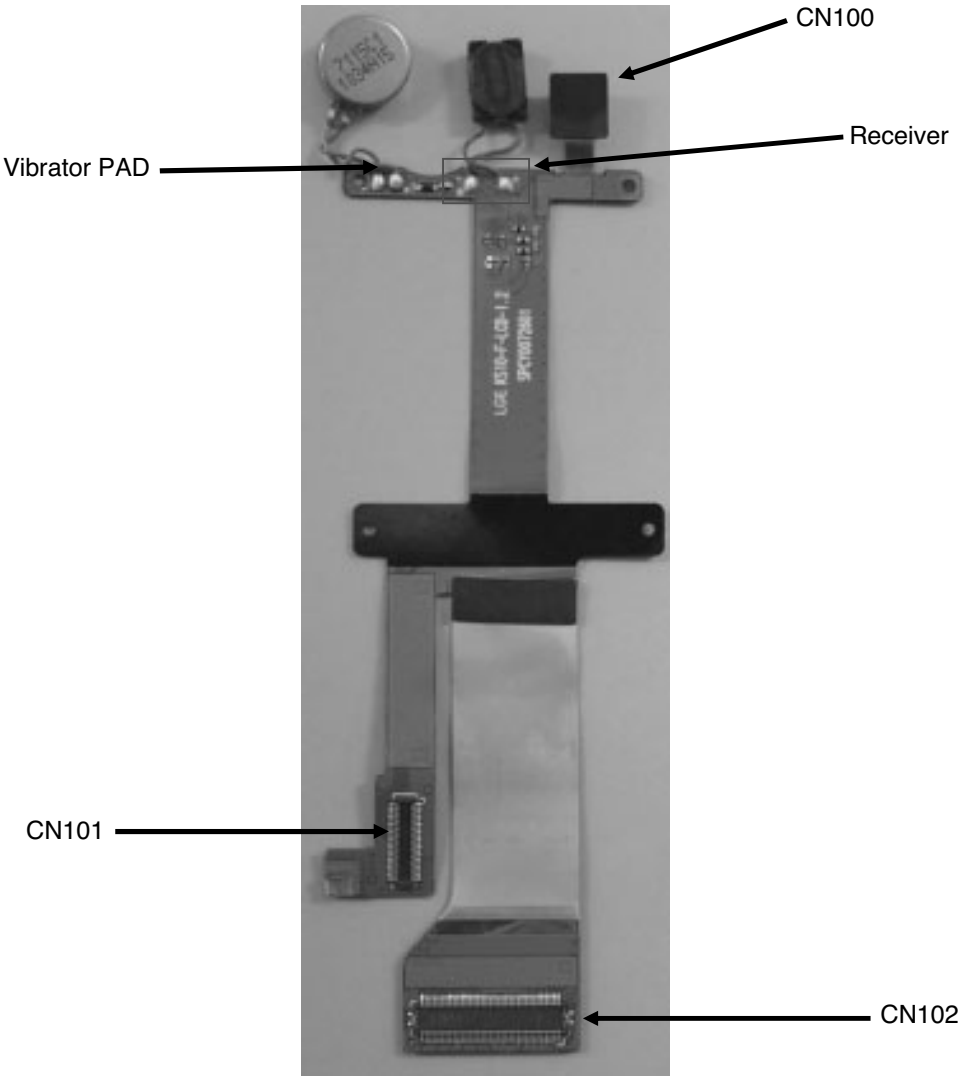


2.4. KEY Bottom Side



Reference	Description	Reference	Description
SW100	Dome Switch	U100	LCD Backlight Driver
CN100	LCD Connector	CN101	FUNCTION-SLIDER Connector (FPCB to KEYPCB)

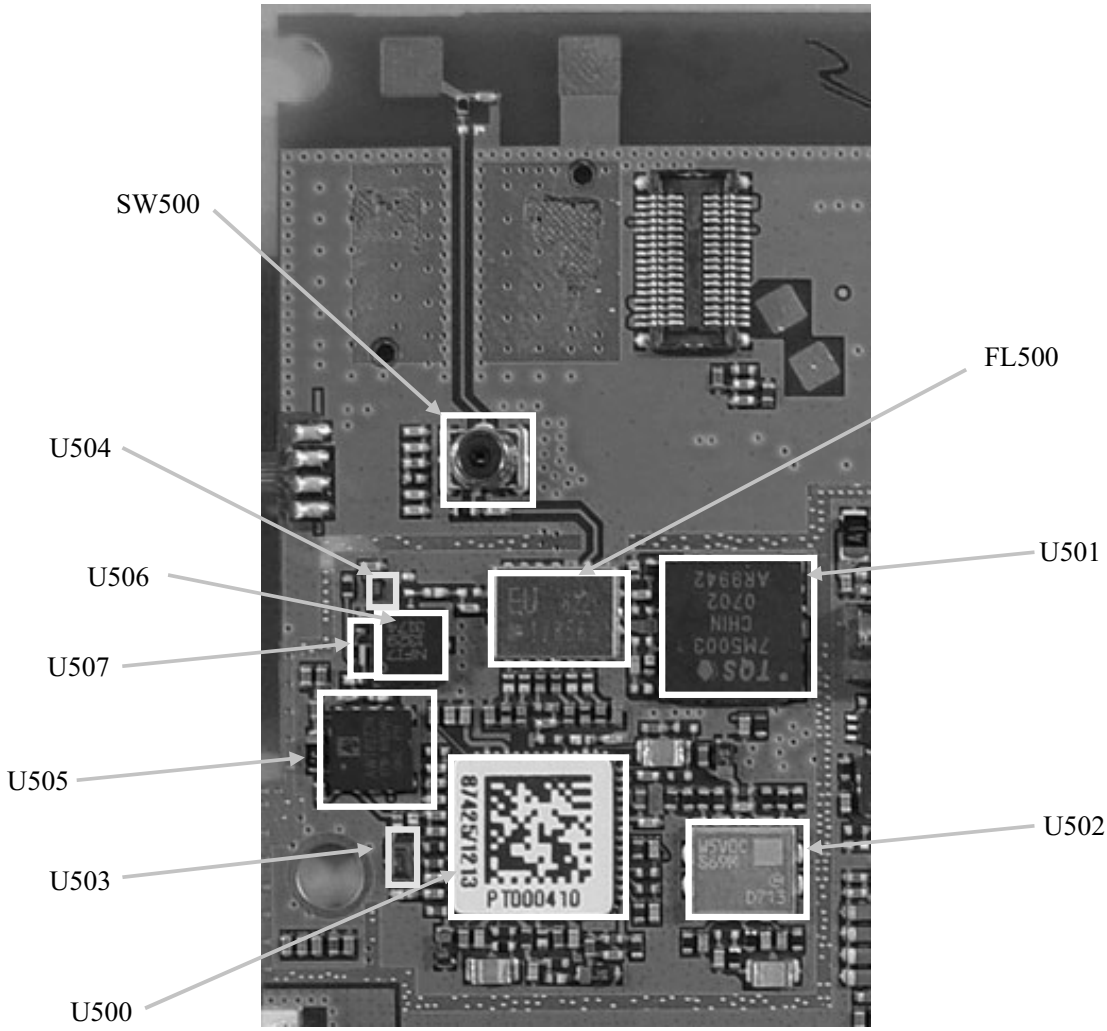
2.5. LCD FPCB



Reference	Description	Reference	Description
Vibrator	Vibrator PAD	CN101	FUNCTION-SLIDER
Receiver	Receiver PAD		Connector (FPCB to KEYPCB)
CN100	VGA_CAMERA Connector	CN102	MAIN-SLIDER CON-SOCKET

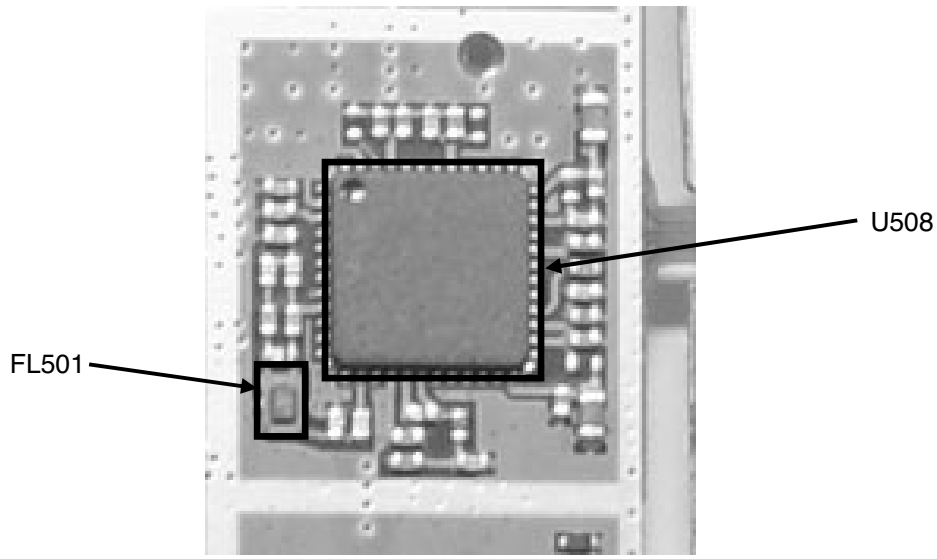
4. TROUBLE SHOOTING

4.1 RF Component



RF component (Bottom)

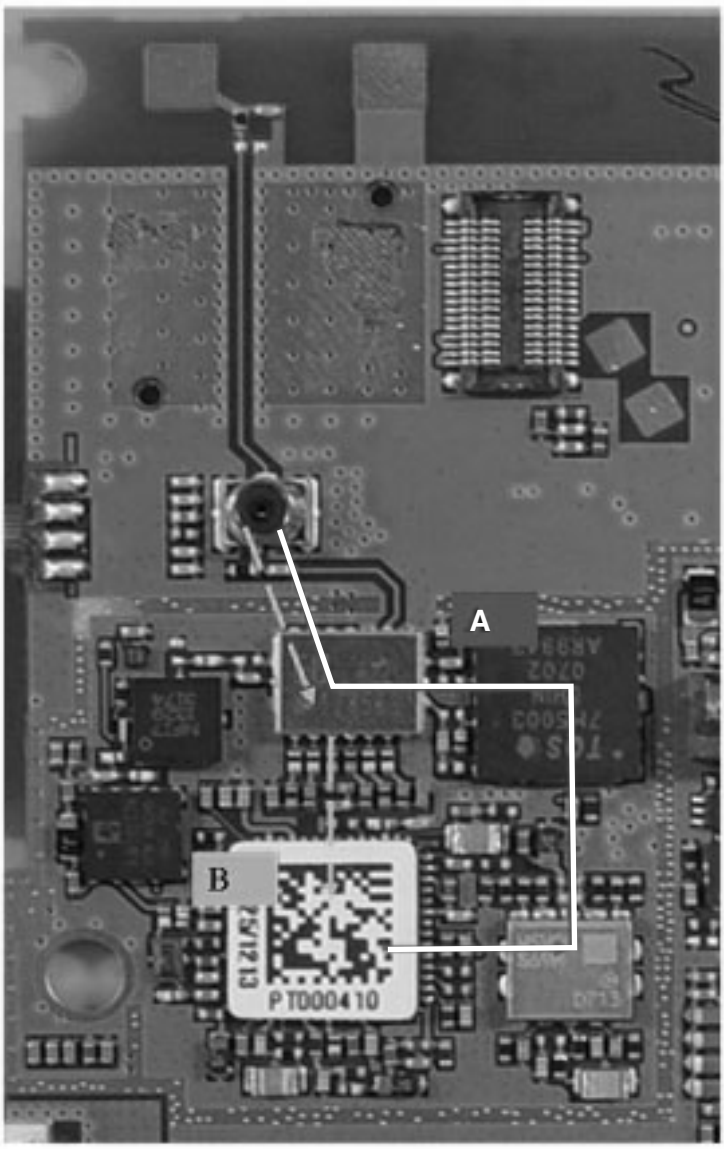
Reference	Description	Reference	Description
U505	WCDMA PAM	U507	Coupler
U506	WCDMA Duplexer	U501	GSM/D/PCS PAM
U503	WCDMA TX SAW	U504	HDET
FL500	Front-End-Module	U500	GSM/WCDMA Transceiver (RTR)
U502	GSM TX VCO	SW500	RF Antenna Connector



RF component (Top)

Reference	Description
U508	RFR6250(WCDMA RX)
FL501	WCDMA RX SAW

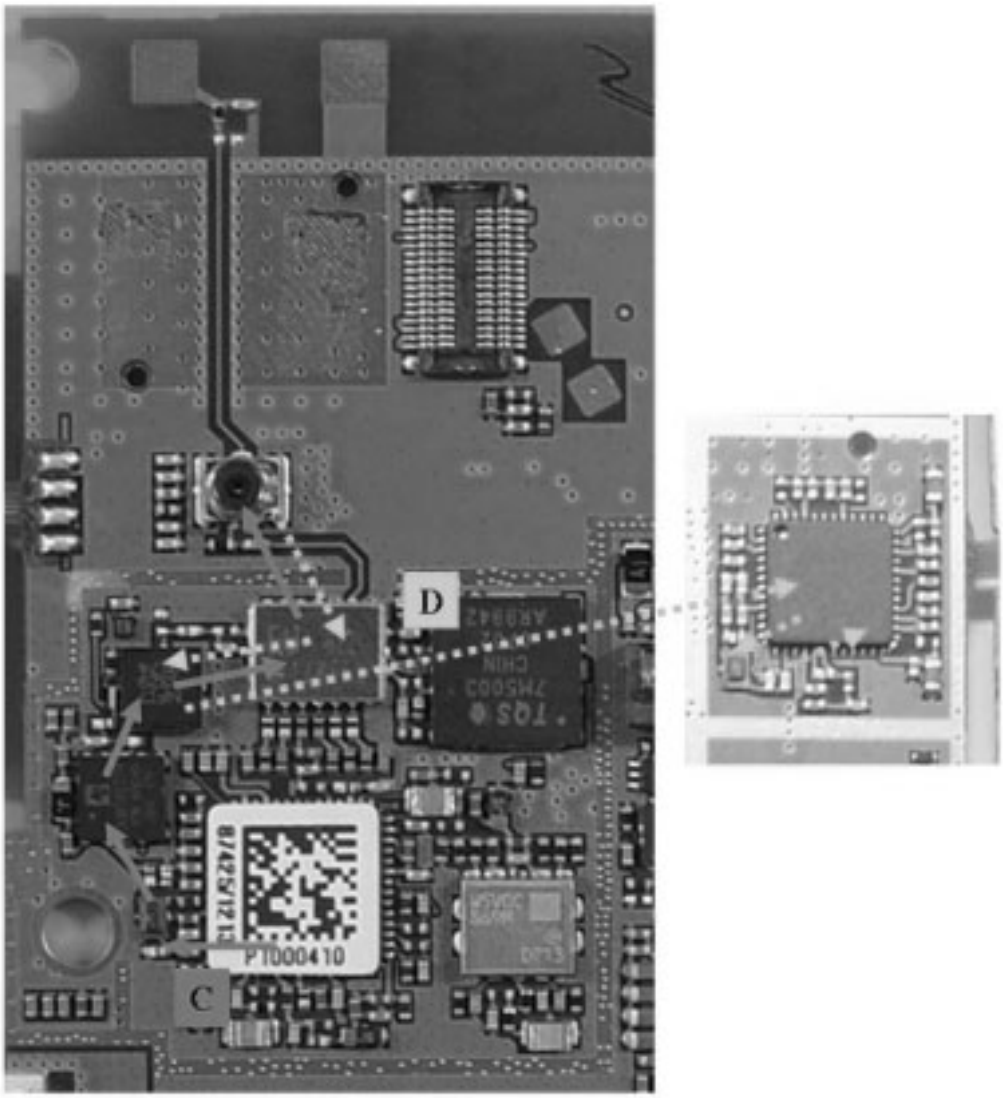
4.2 SIGNAL PATH



GSM/DCS/PCS Rx Tx PATH

A. GSM/DCS/PCS Tx PATH

B. GSM/DCS/PCS Rx PATH



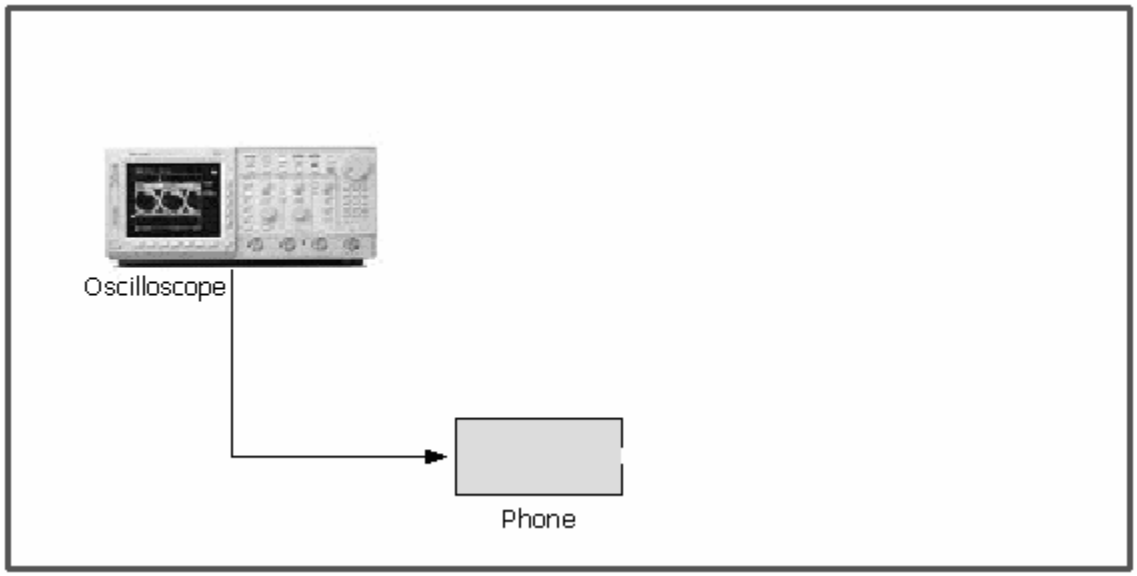
WCDMA RX/ TX PATH

C. WCDMA Tx PATH

D. WCDMA Rx PATH

4.3 Checking VCXO Block

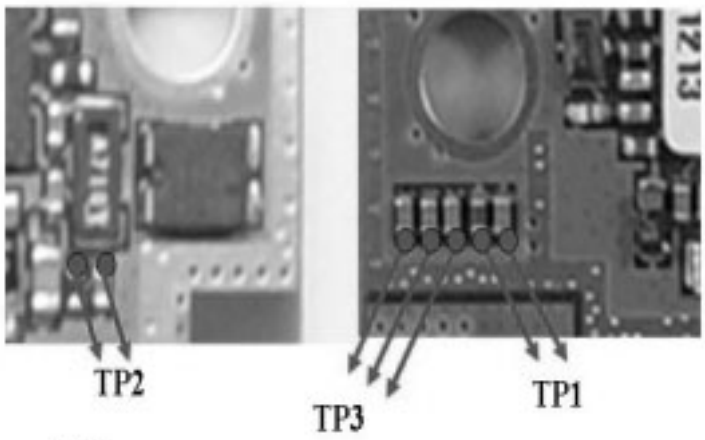
The reference frequency (19.2MHz) from X100 (VCXO) is used WCDMA TX part, GSM part and BB part.

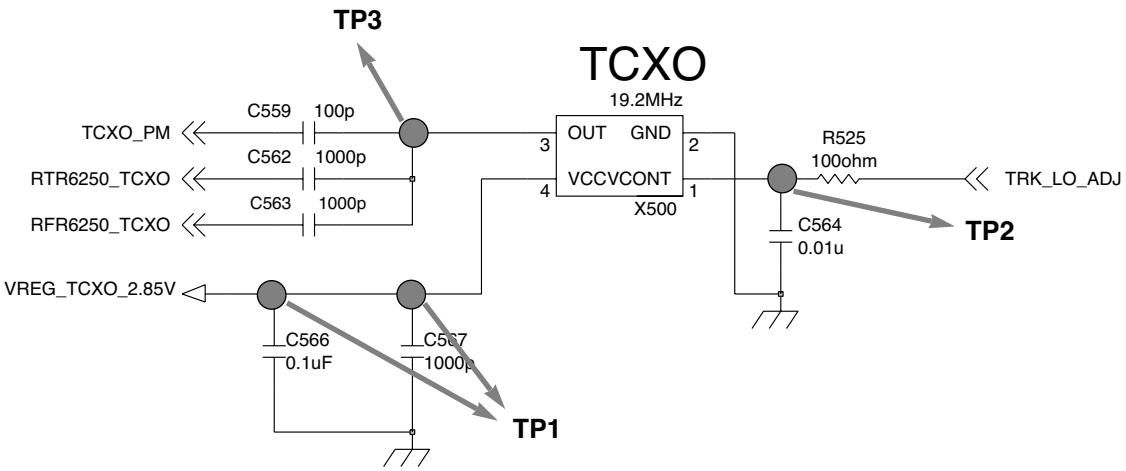


Check 1. Crystal part

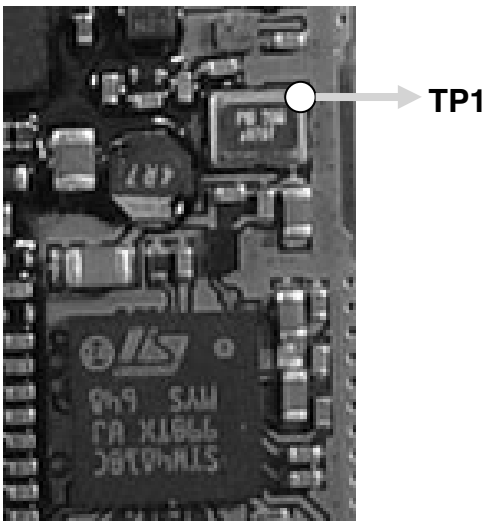
If you already check this crystal part, you can skip check 1.

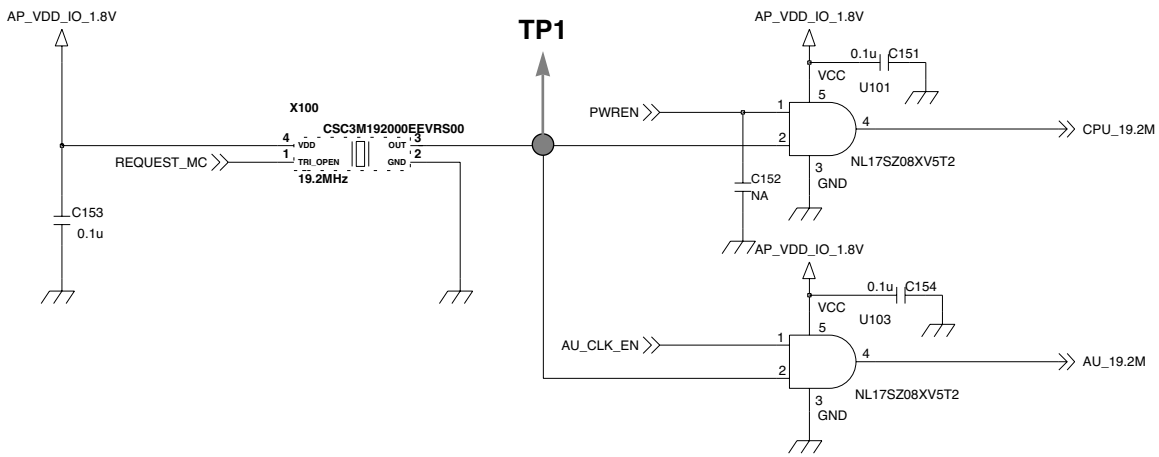
Test Point (Crystal Part)





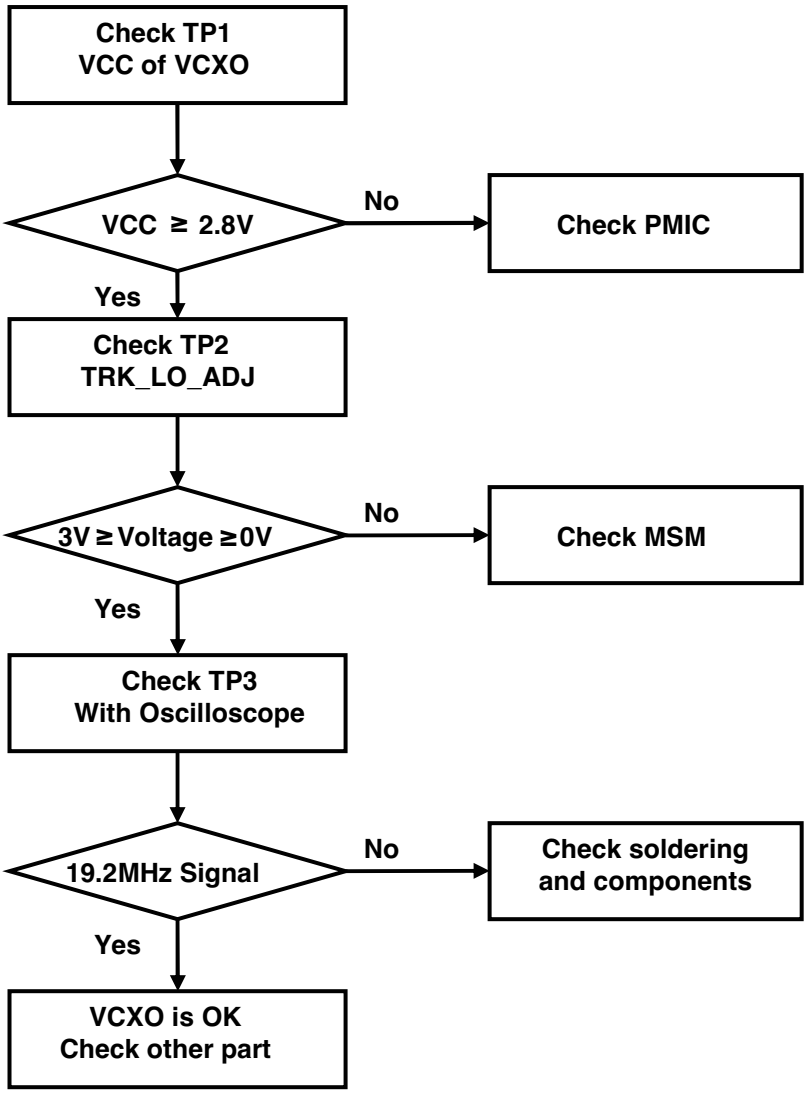
Schematic of the Crystal Part



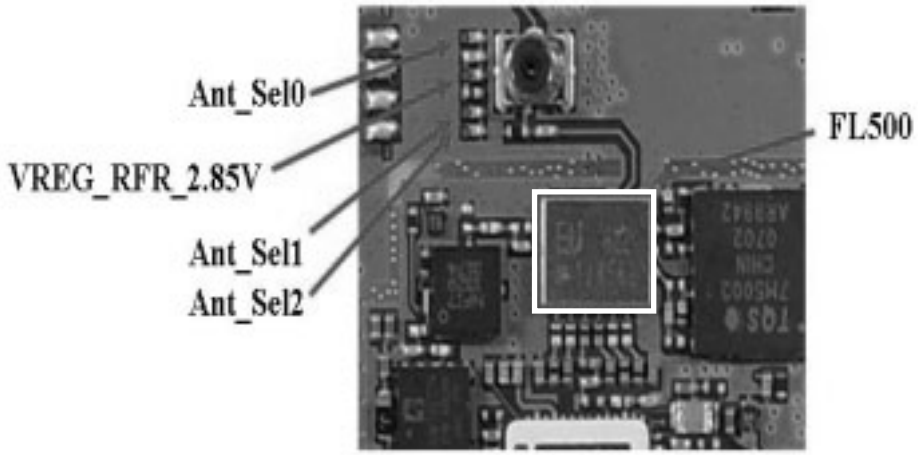


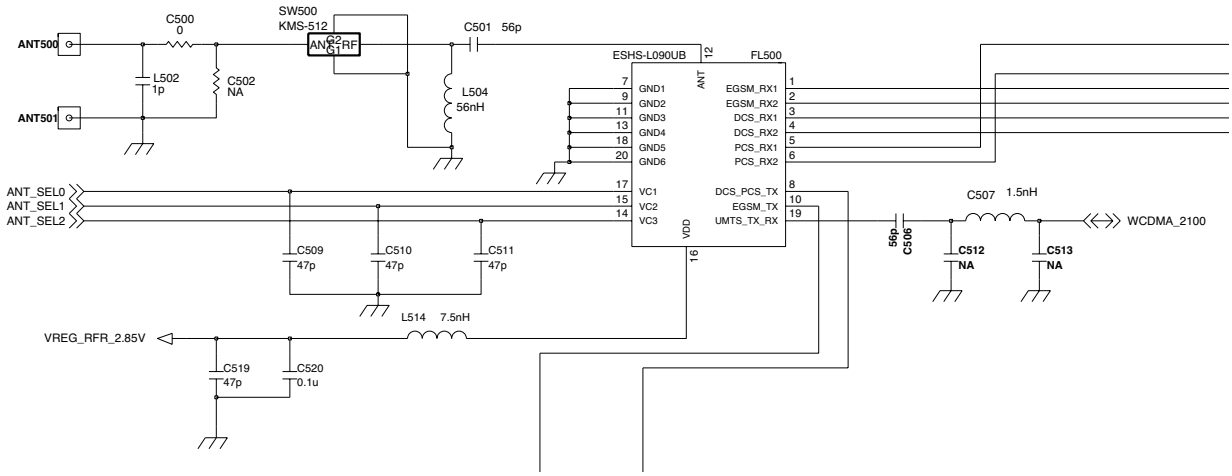
Schematic of the Crystal Part (19.2MHz)

4. TROUBLE SHOOTING



4.4 Checking Ant. Switch Module Block



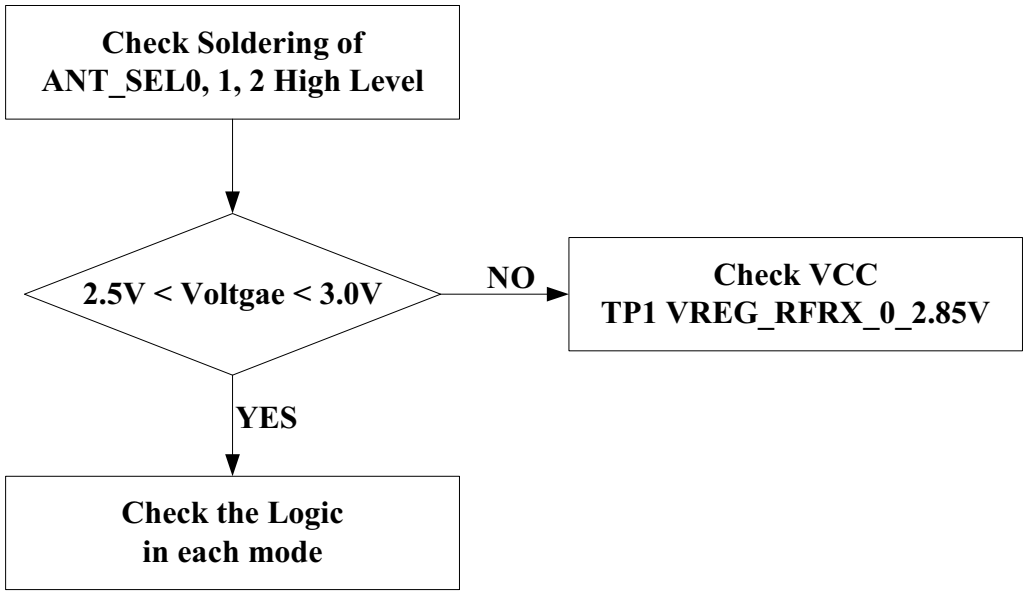


Schematic of the Antenna Switch Block

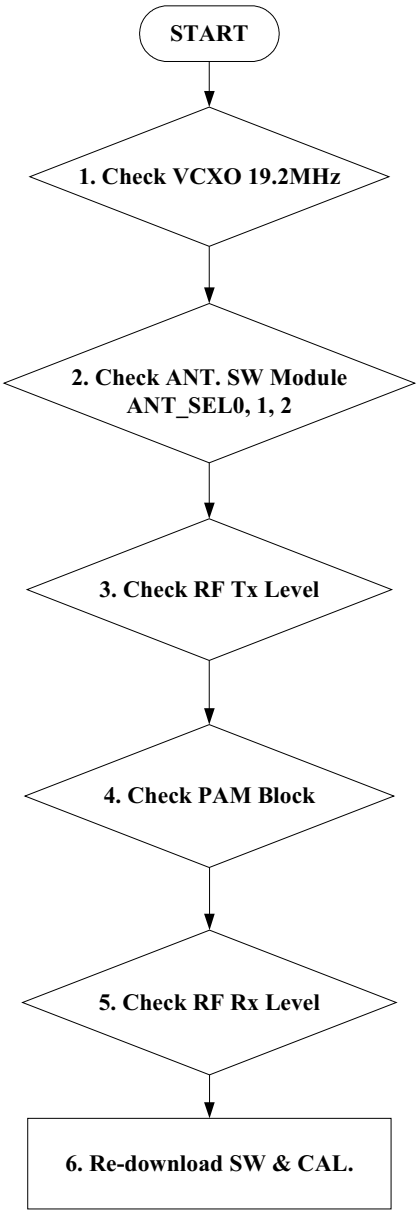
Logic Table of the Antenna Switch

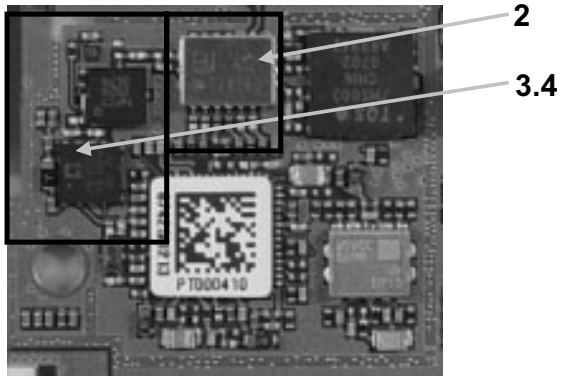
Mode	ANT_SEL0	ANT_SEL1	ANT_SEL2
EGSM TX	High	Low	Low
EGSM RX	Low	Low	Low
DCS/PCS TX	Low	High	High
DCS RX	Low	Low	High
PCS RX	Low	High	Low
UMTS	Low	Low	Low

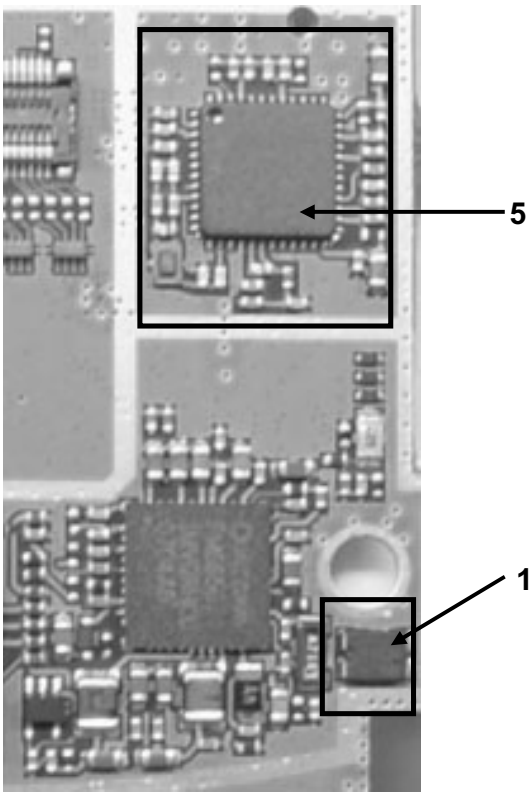
Checking Switch Block power source



4.5 Checking WCDMA Block







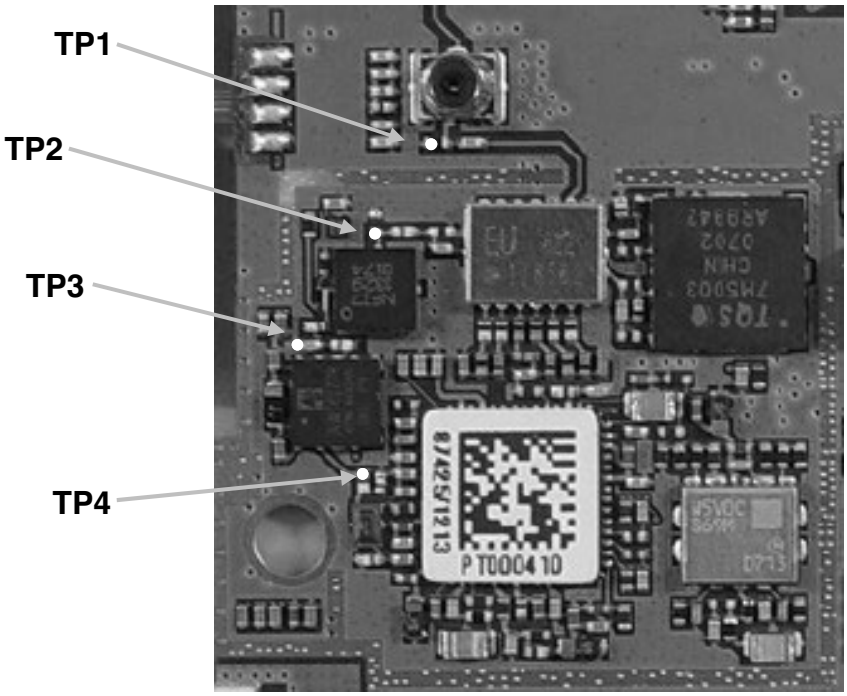
4.5.1 Checking VCXO Block

Refer to 3.3

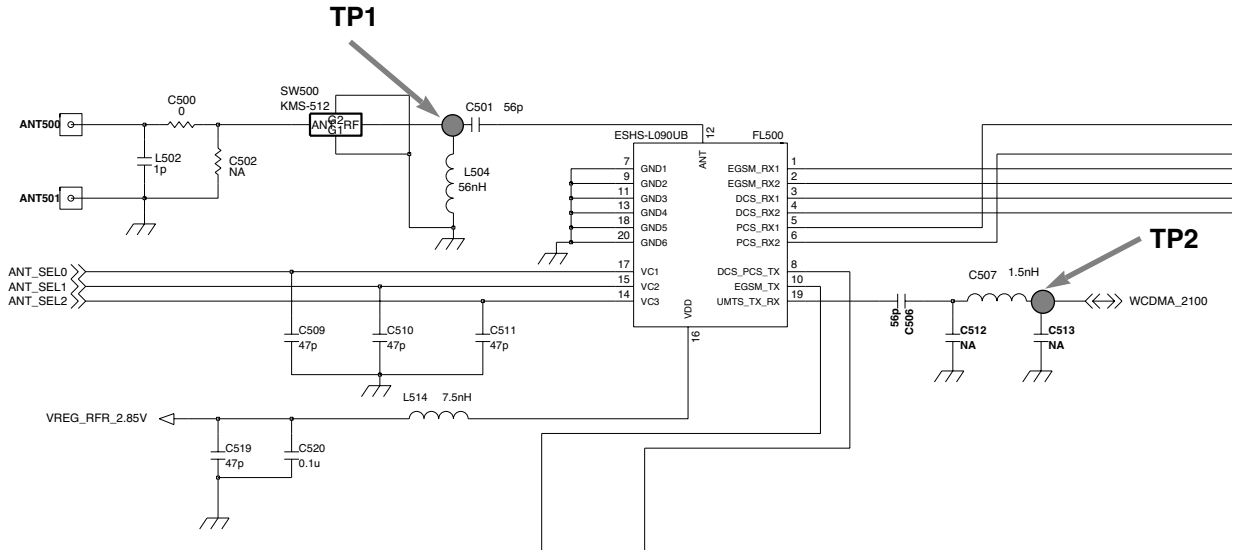
4.5.2 Checking Ant. SW module

Refer to 3.4

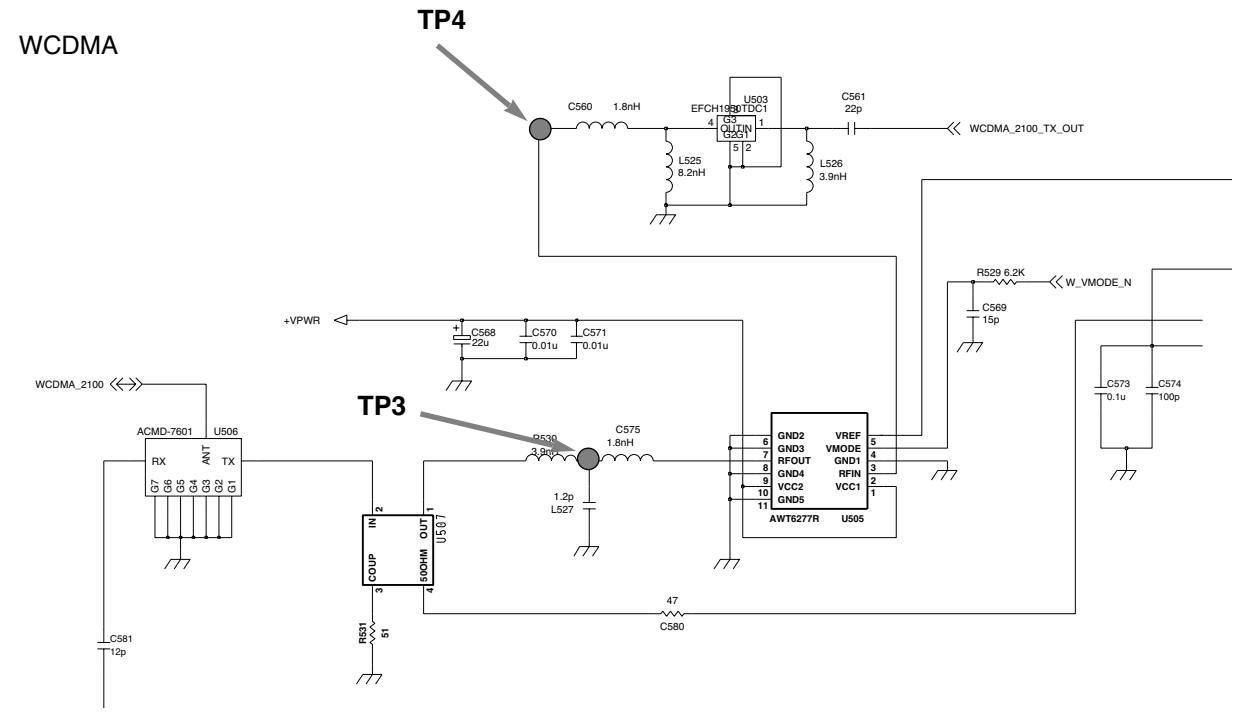
4.5.3 Checking RF TX Level



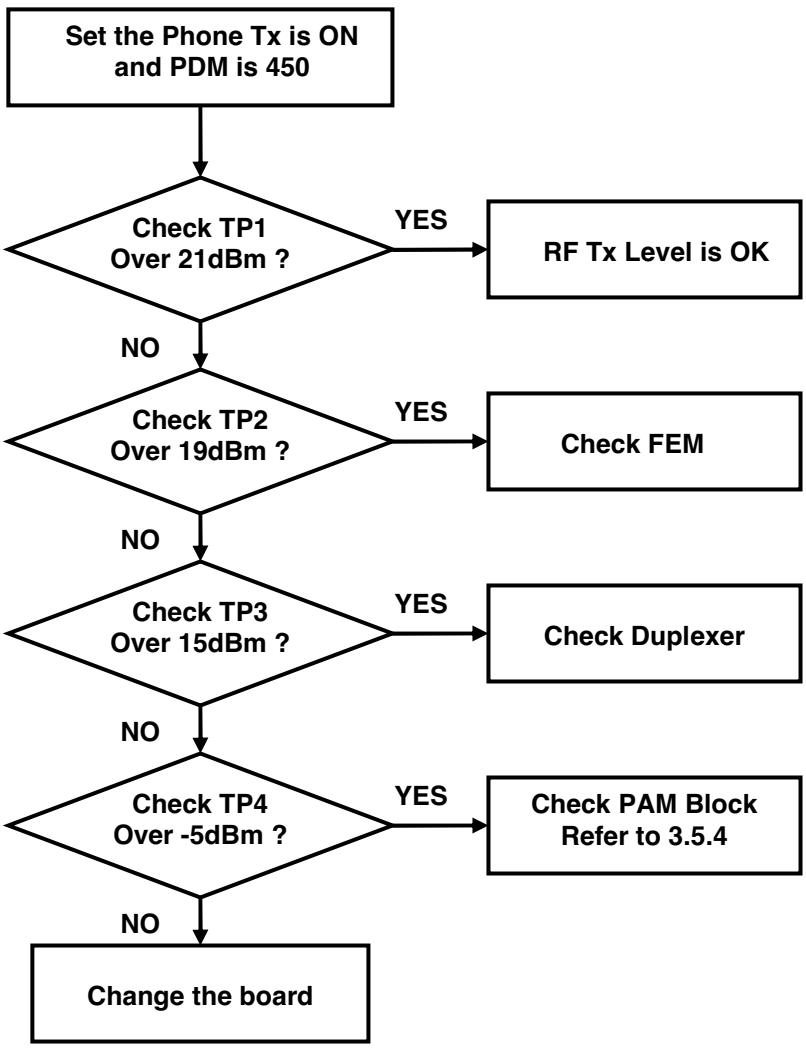
Test Point (RF TX Level)



WCDMA



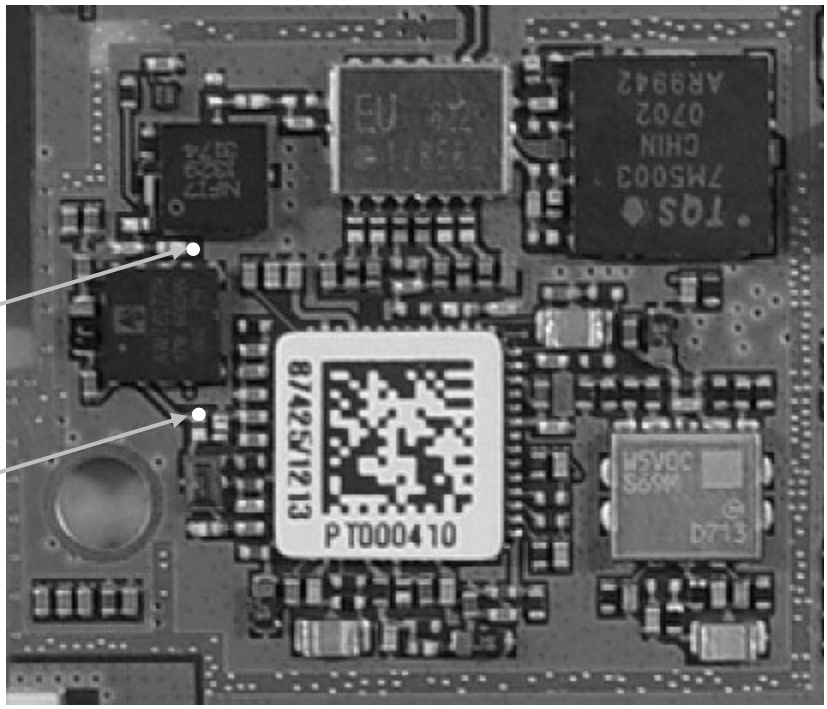
For testing, Max power output is needed.



4.5.4 Checking PAM Block

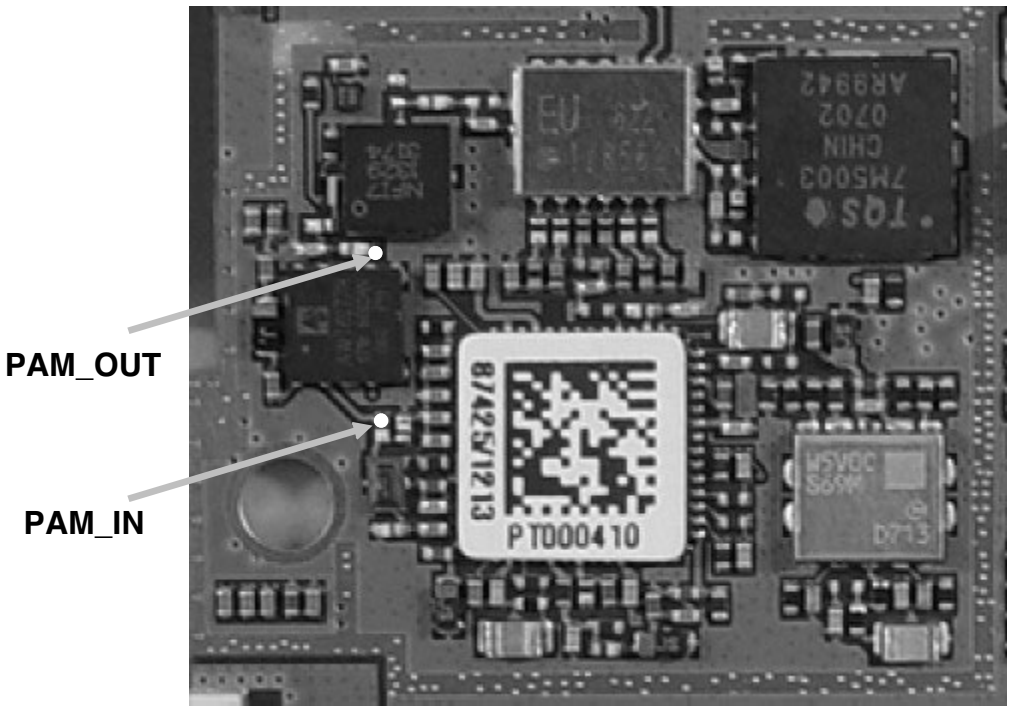
PAM control signal

PA_ON : WCDMA Tx Power Detect IC(HDET) Enable
PA_RO: WCDMA Tx Power Amp Gain Control



PA_ON must be HIGH(over 2.5V)
PA_FET_N must be LOW if the max Tx power is set (lower than 0.5V)

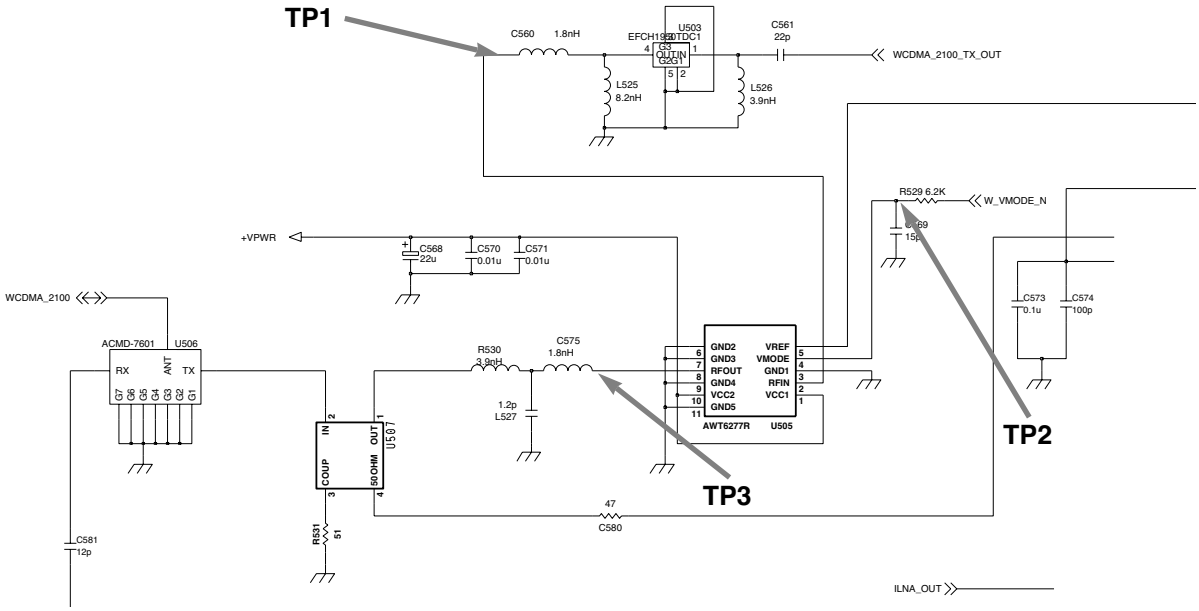
PAM IN/OUT Signal

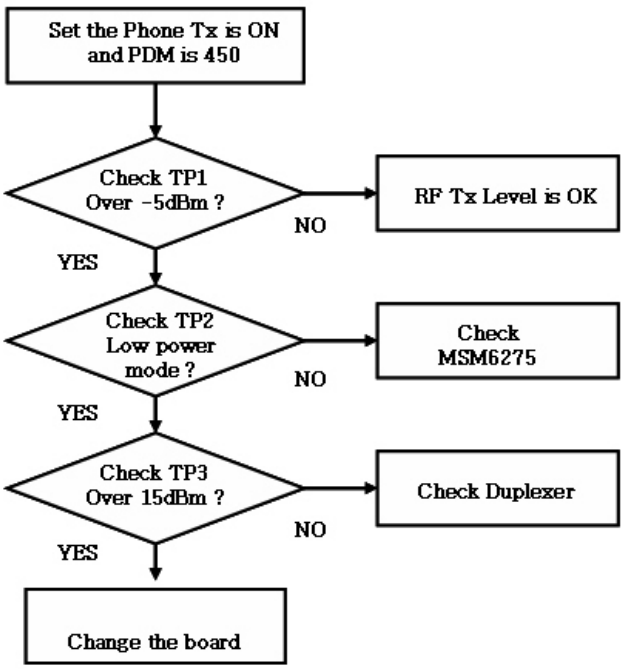


PAM OUT must be over 15dBm

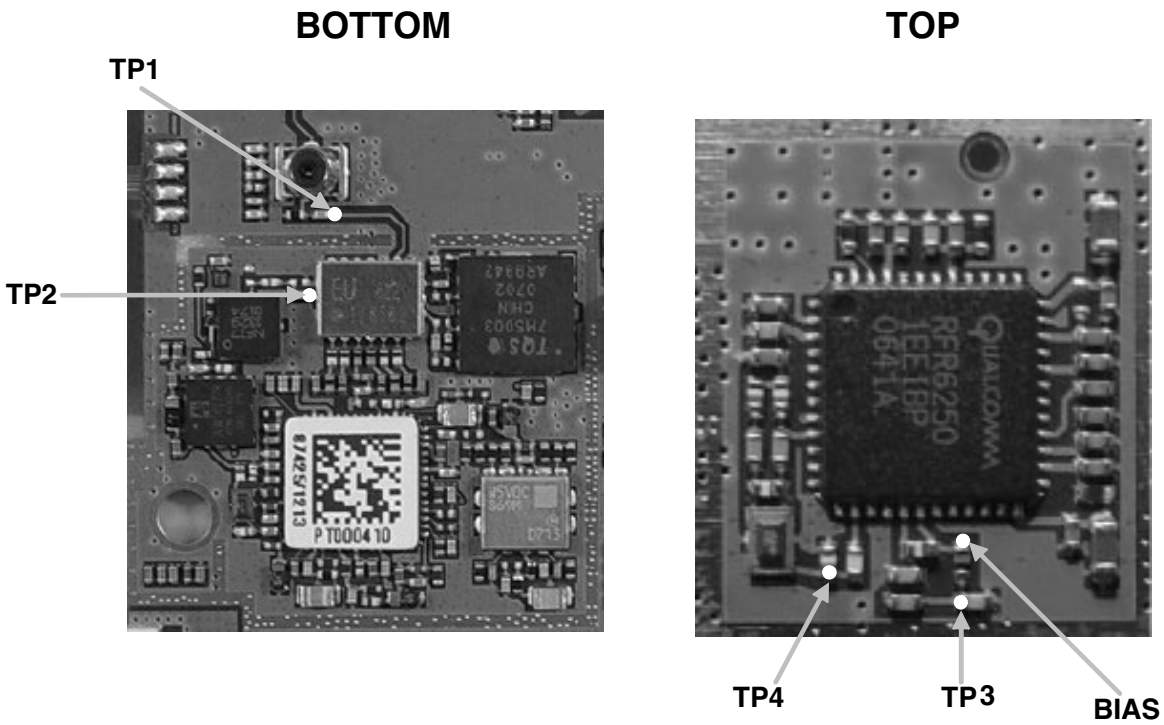
PAM IN must be over -5dBm

WCDMA

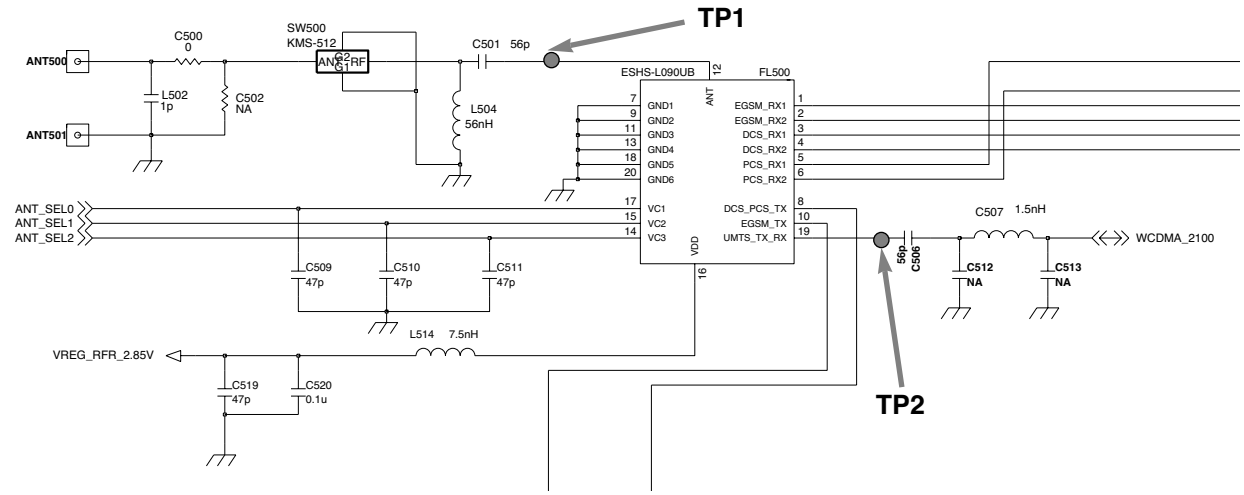


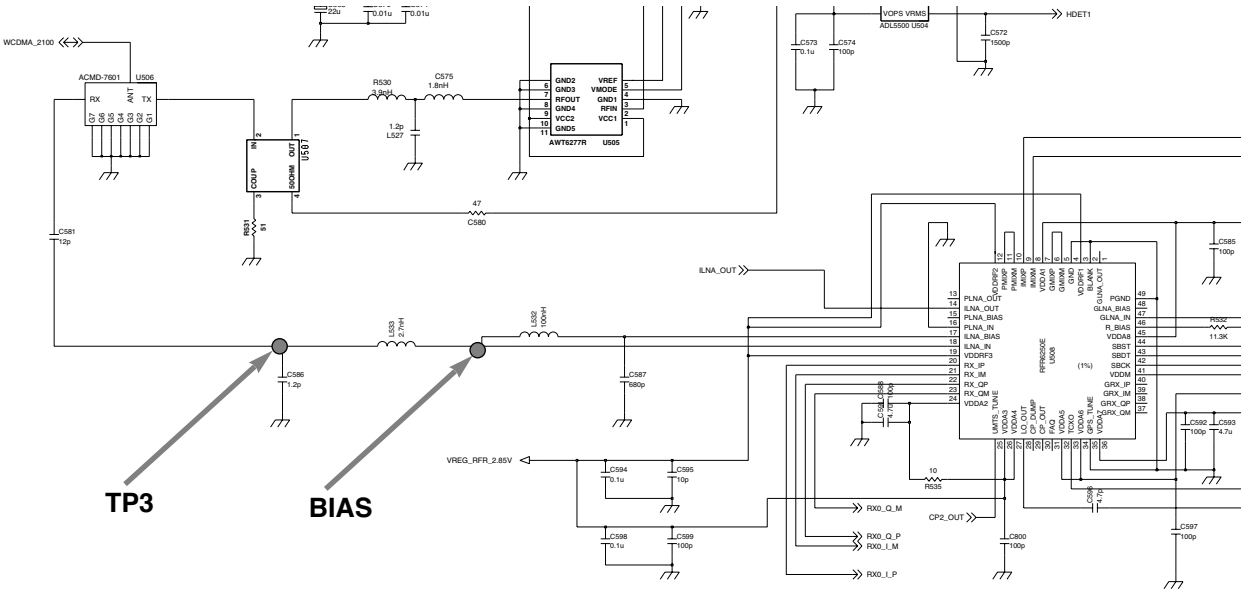


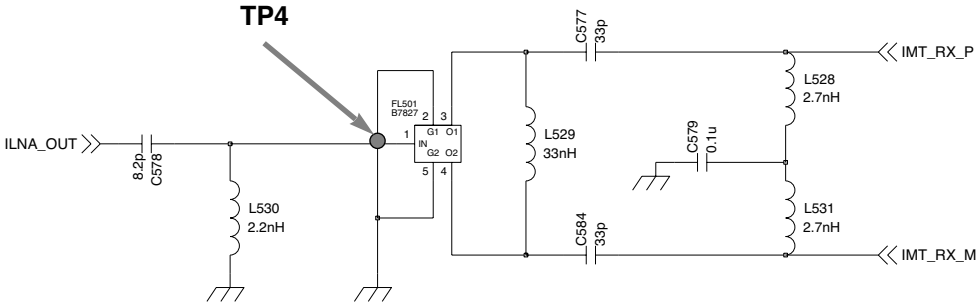
4.5.5 Check RF Rx Level



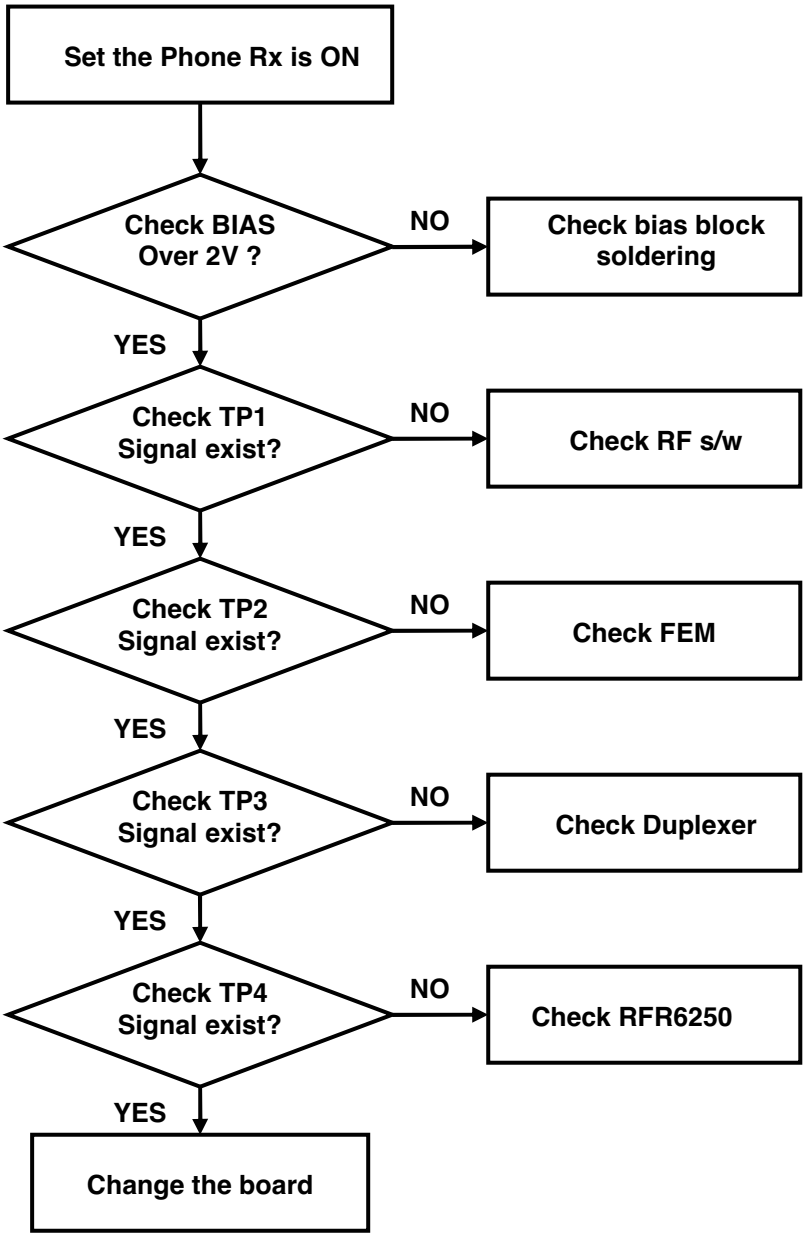
Test Point (RF Rx Level)



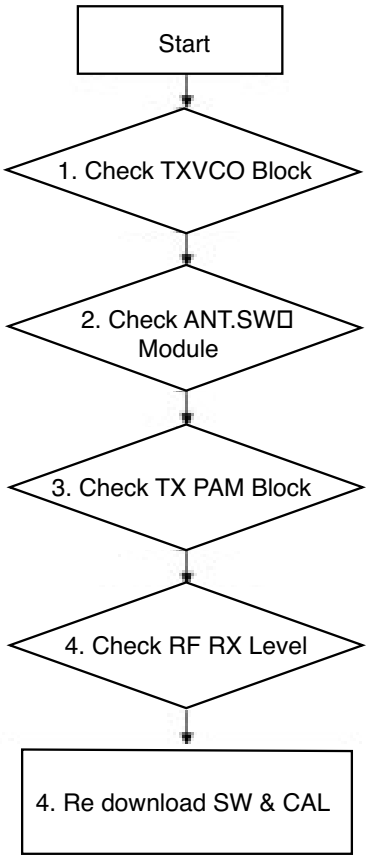


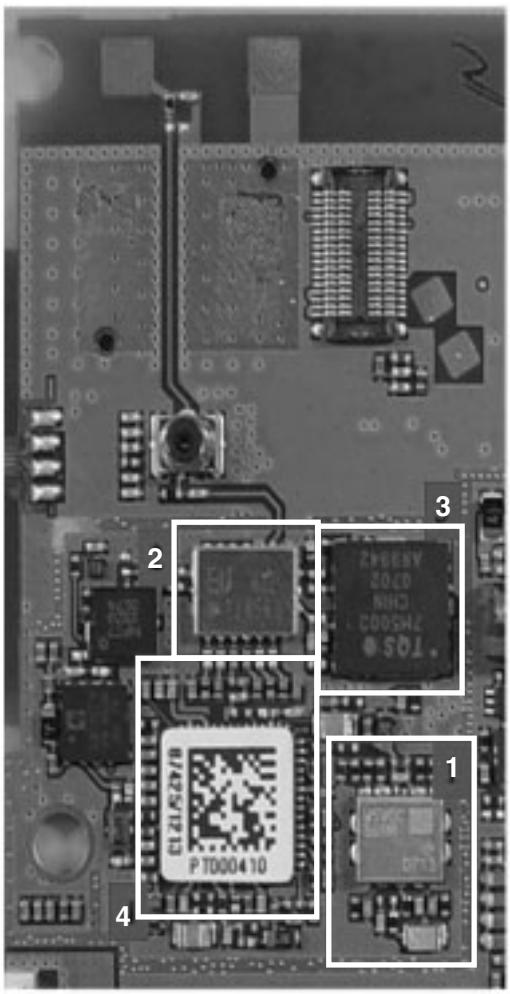


4. TROUBLE SHOOTING

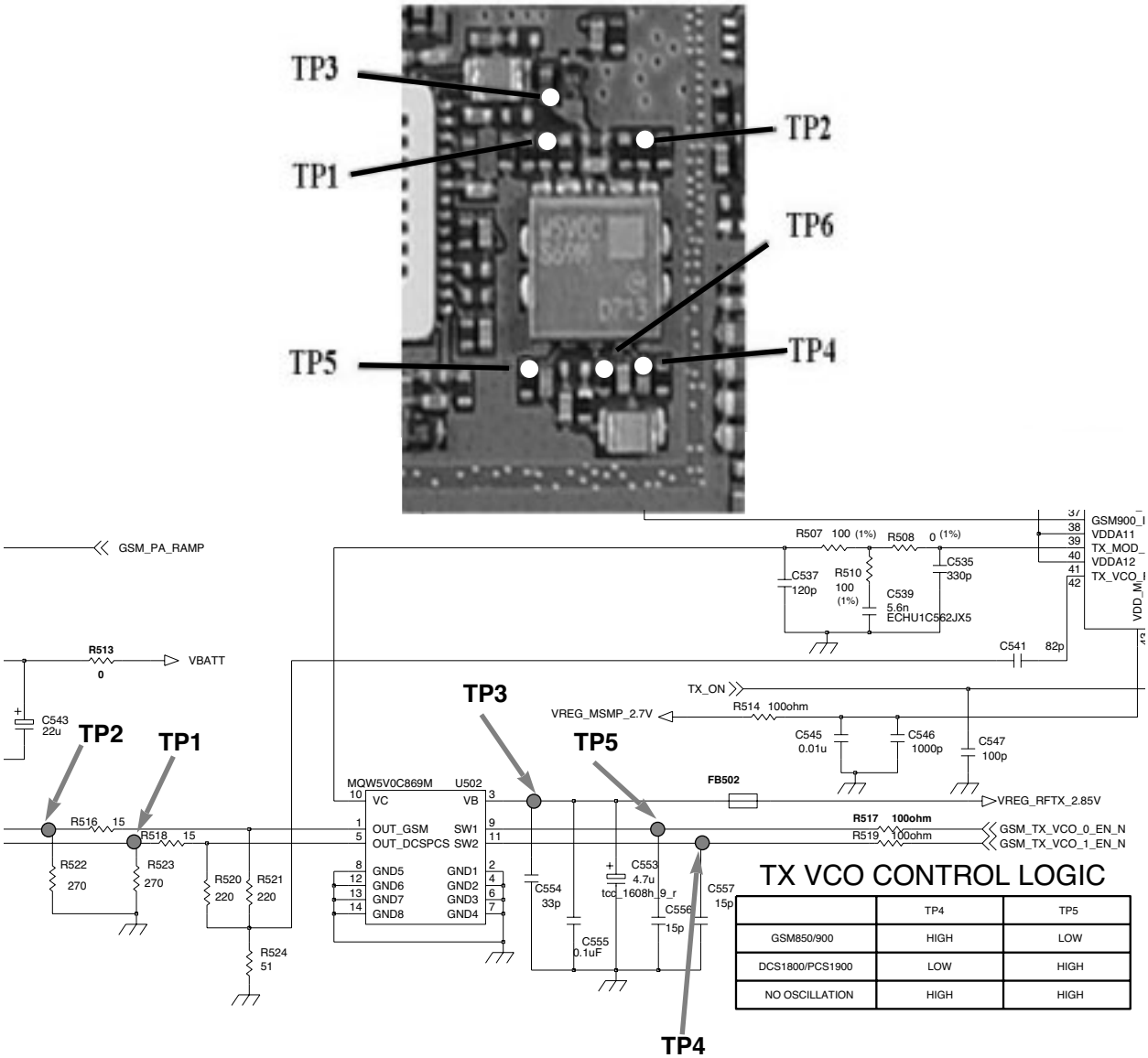


4.6 Checking GSM Block



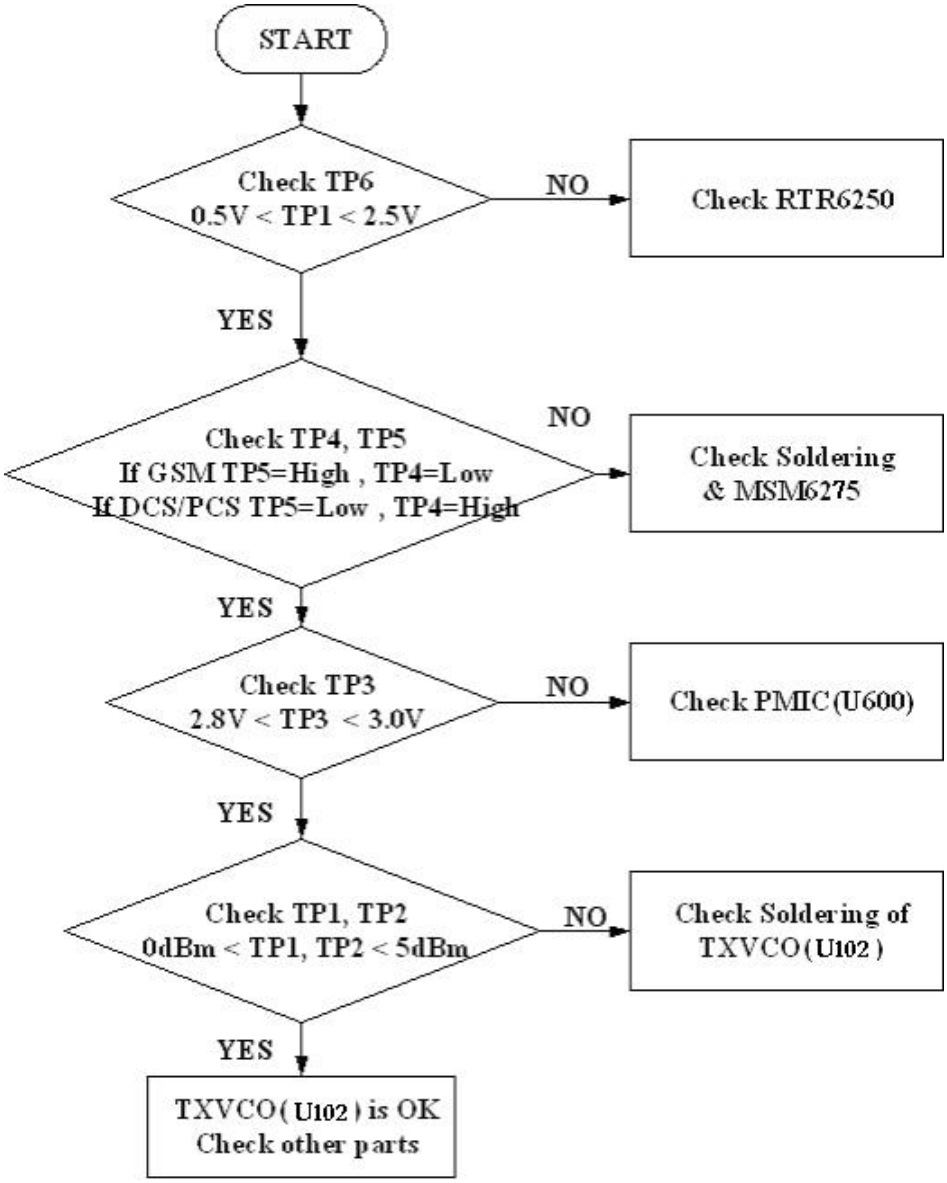


4.6.1 Checking VCO Block



TX VCO CONTROL LOGIC

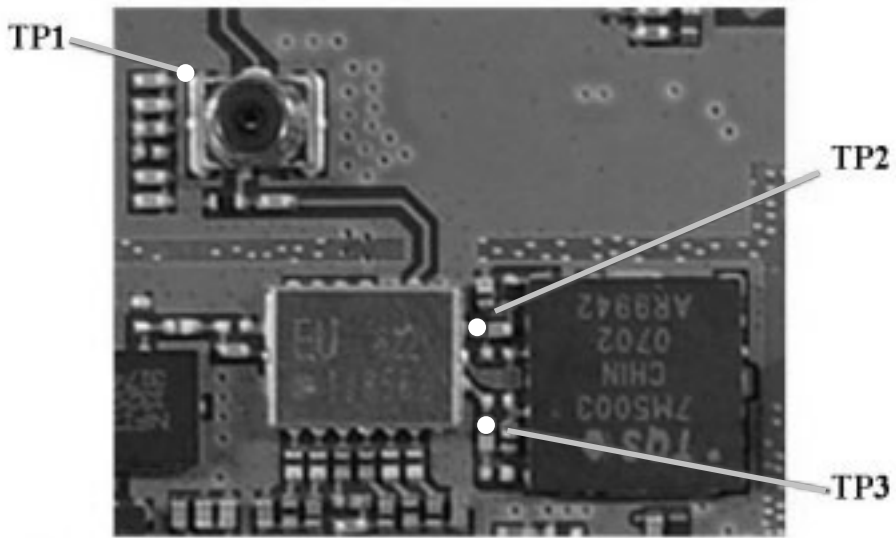
	TP4	TP5
GSM850/900	HIGH	LOW
DCS1800/PCS1900	LOW	HIGH
NO OSCILLATION	HIGH	HIGH

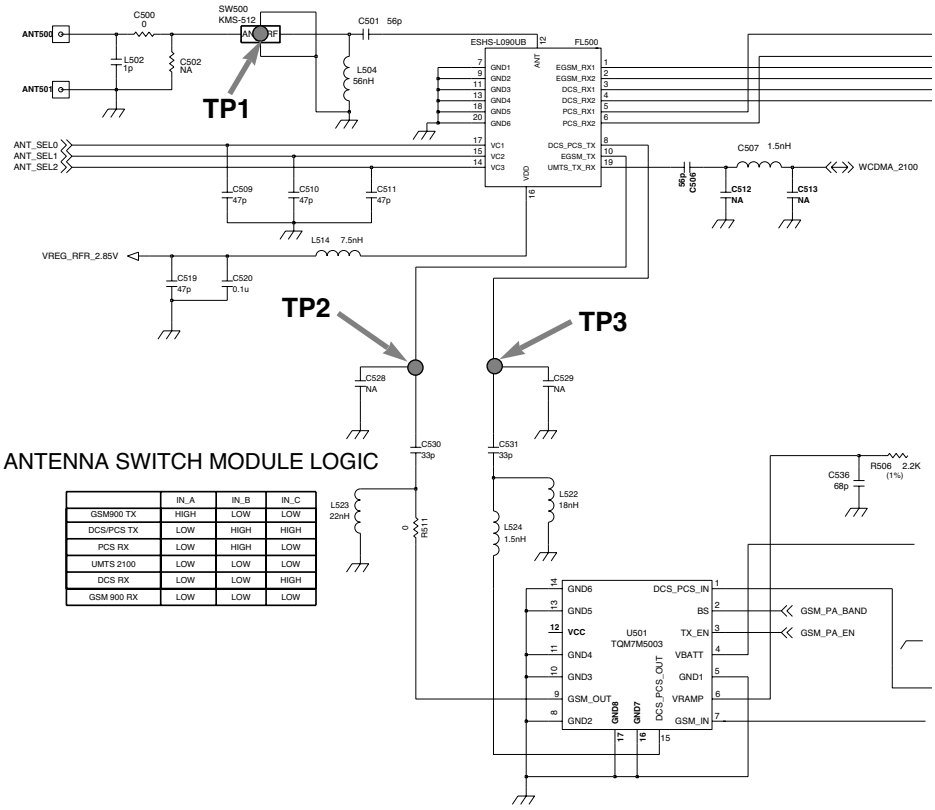


4.6.2 Checking Ant. SW Module

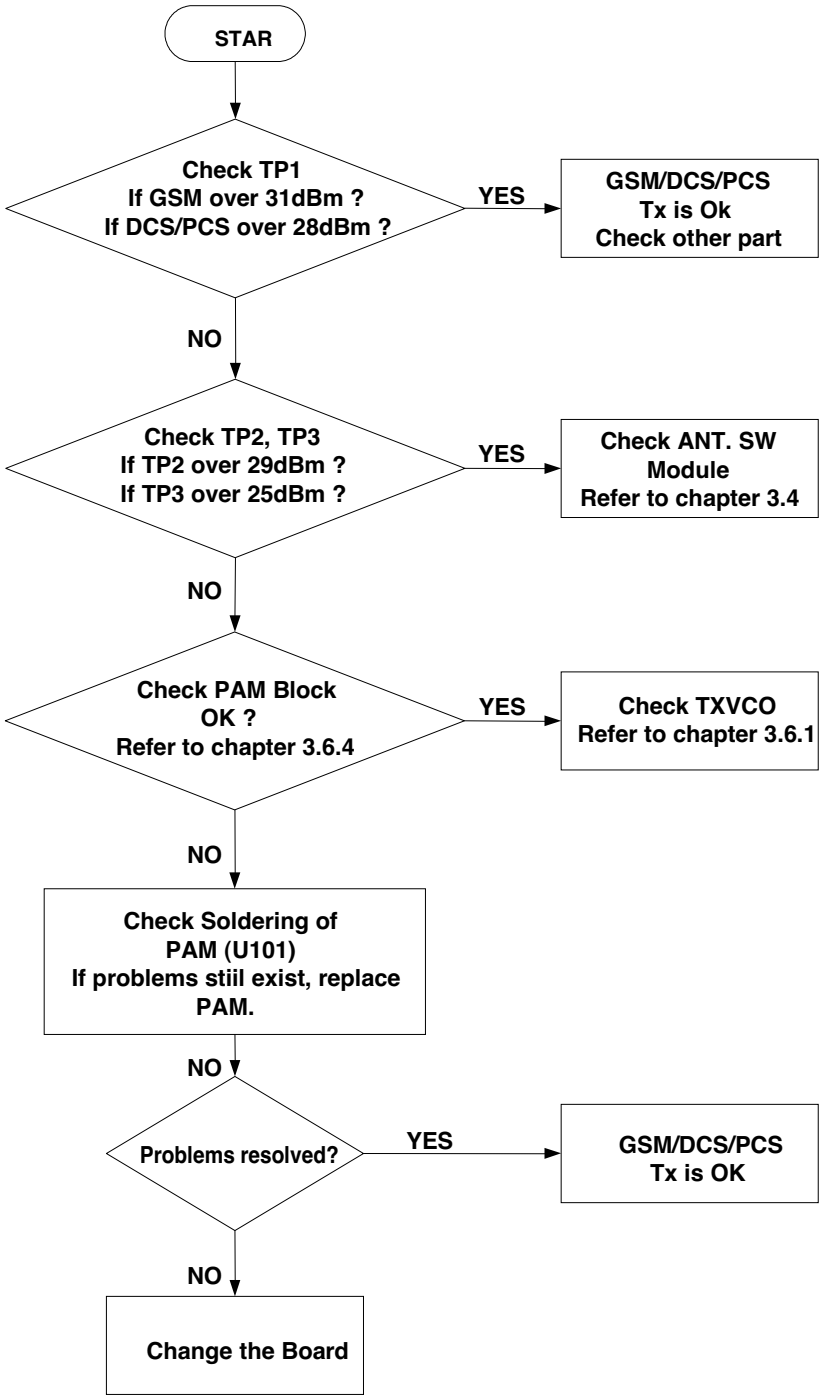
Refer to chapter 3.4

4.6.3 Checking RF Tx level





	IN_A	IN_B	IN_C
GSM900 TX	HIGH	LOW	LOW
DCS/PCS TX	LOW	HIGH	HIGH
PCS RX	LOW	HIGH	LOW
UMTS 2100	LOW	LOW	LOW
DCS RX	LOW	LOW	HIGH
GSM 900 RX	LOW	LOW	LOW



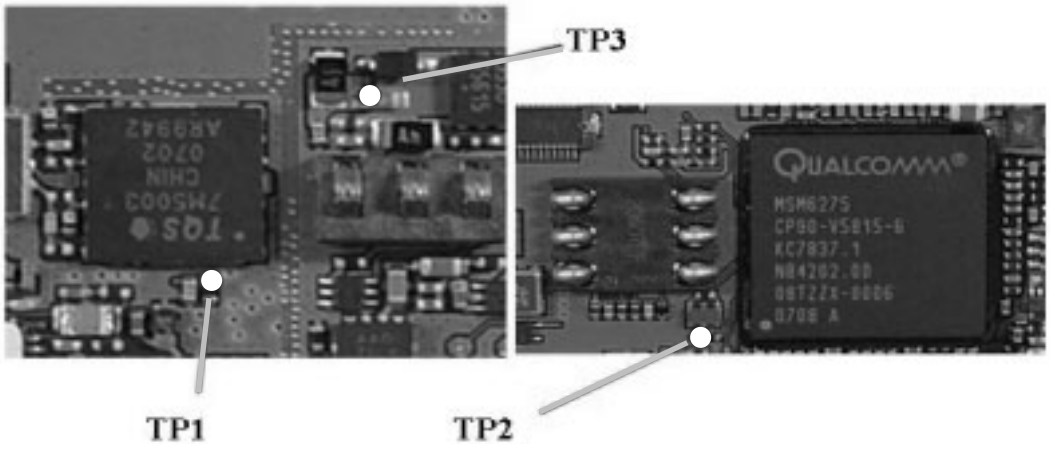
4.6.4 Checking PAM Block

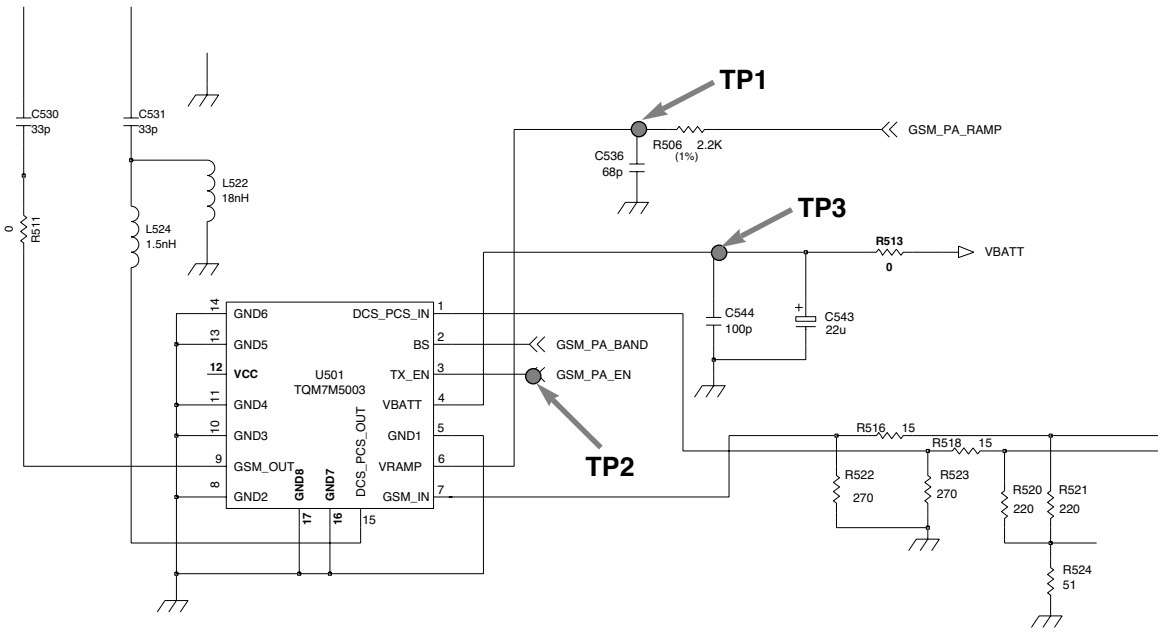
PAM Control Signal

TP1. GSM_PA_RAMP : Power Amp Gain Control. typically, 0.5V < Vapc < 2.6V,

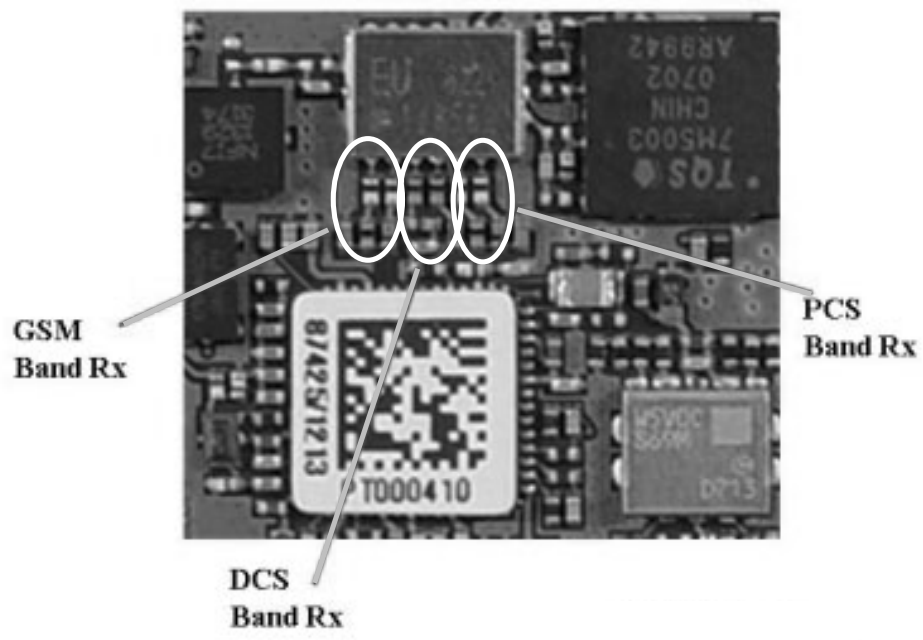
TP2. GSM_PA_EN : Power Amp Enable
(Power ON : higher than 2.5V , Power OFF : lower than 0.7V)

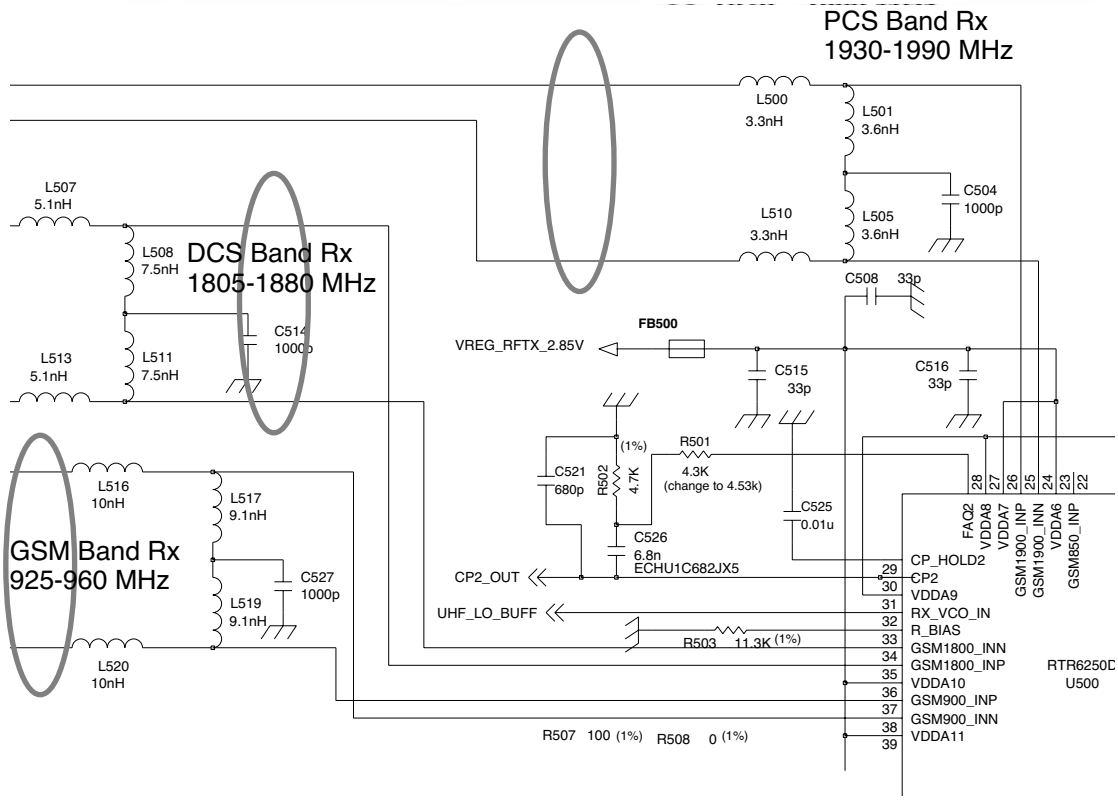
TP3. +VPWR : PAM Supply Voltage Vcc higher than 3.28V

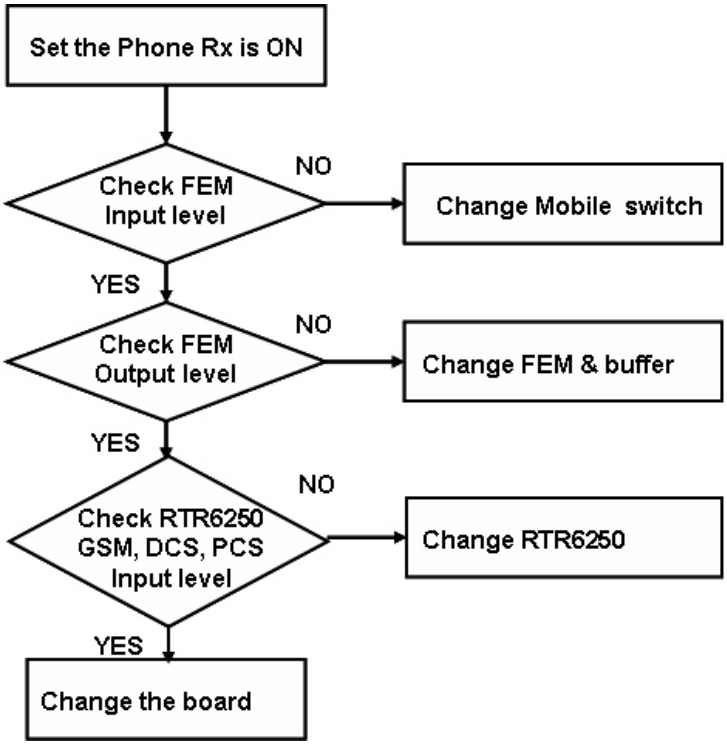




4.6.5 Checking RF Rx Block





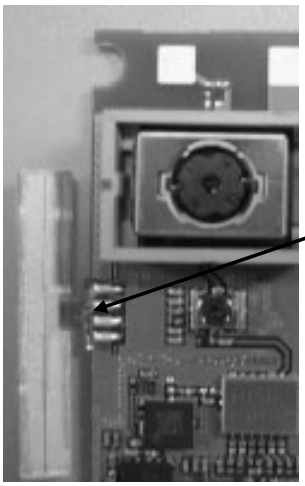


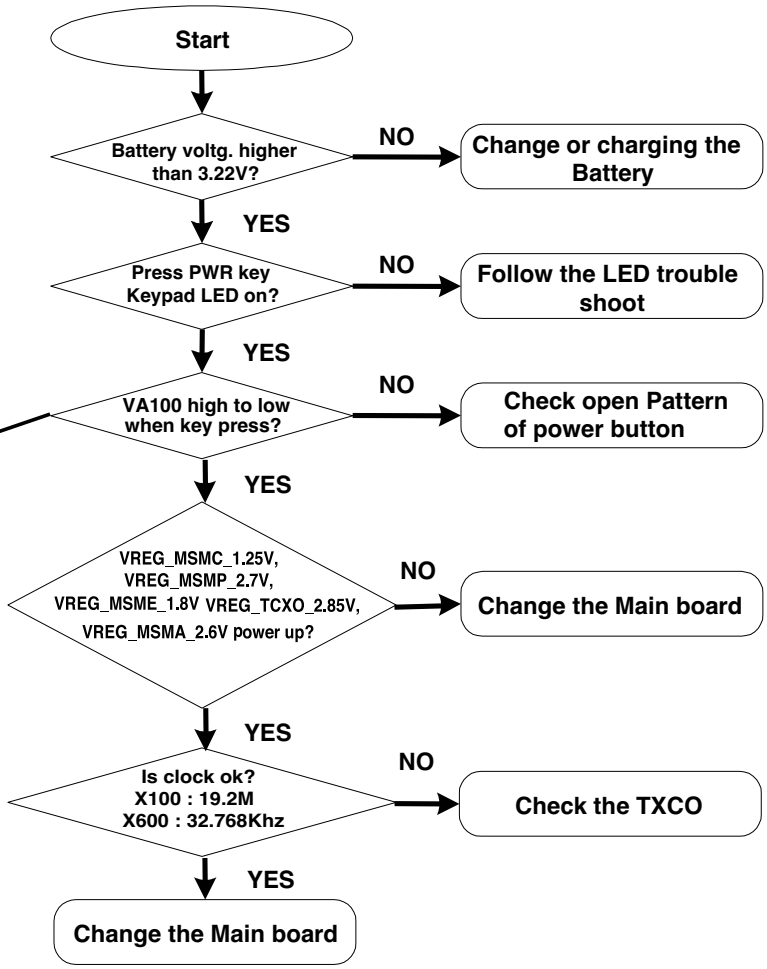
BB Trouble Shooting

4.7 Power on trouble

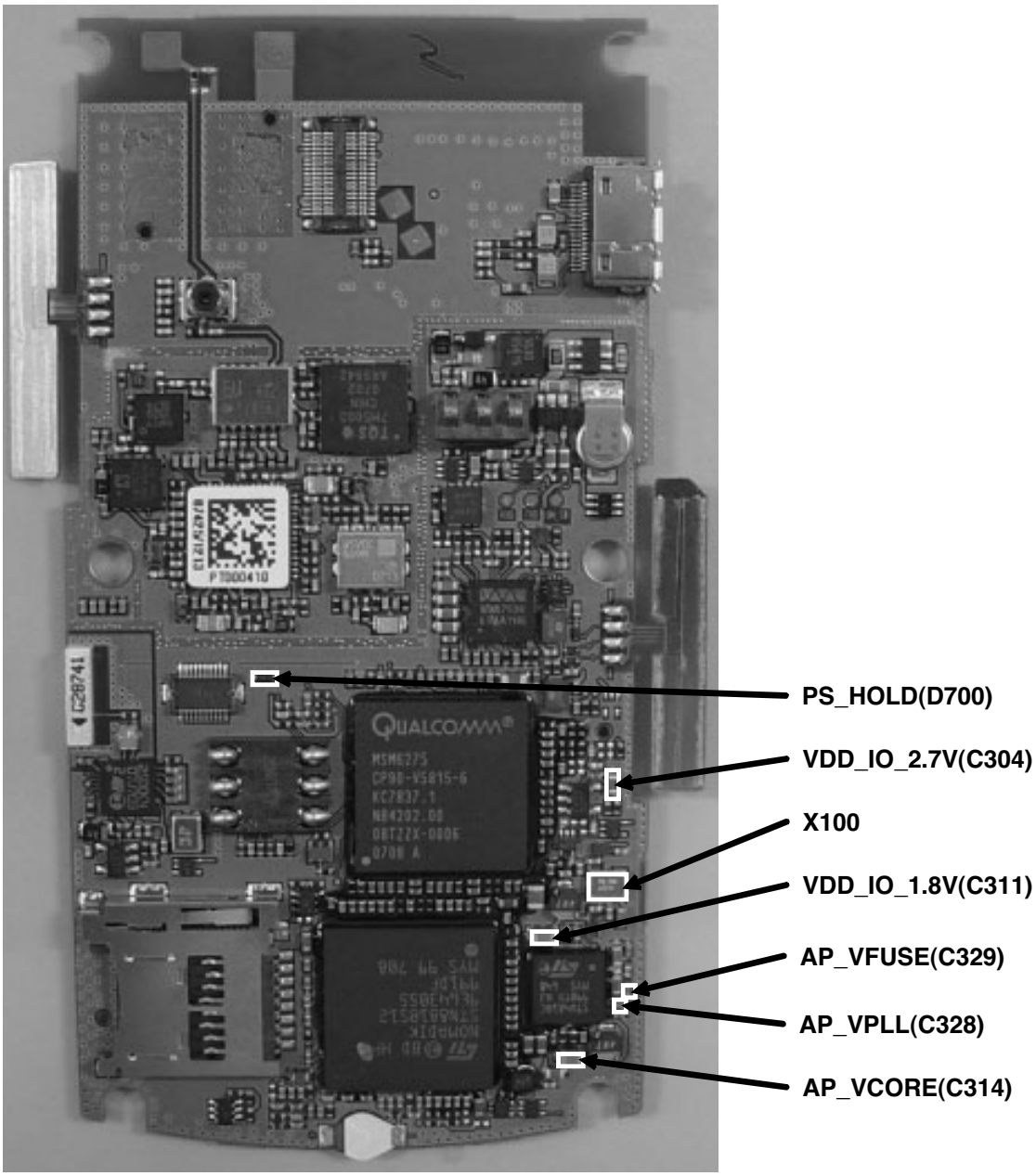
Power on sequence of KS10 is :

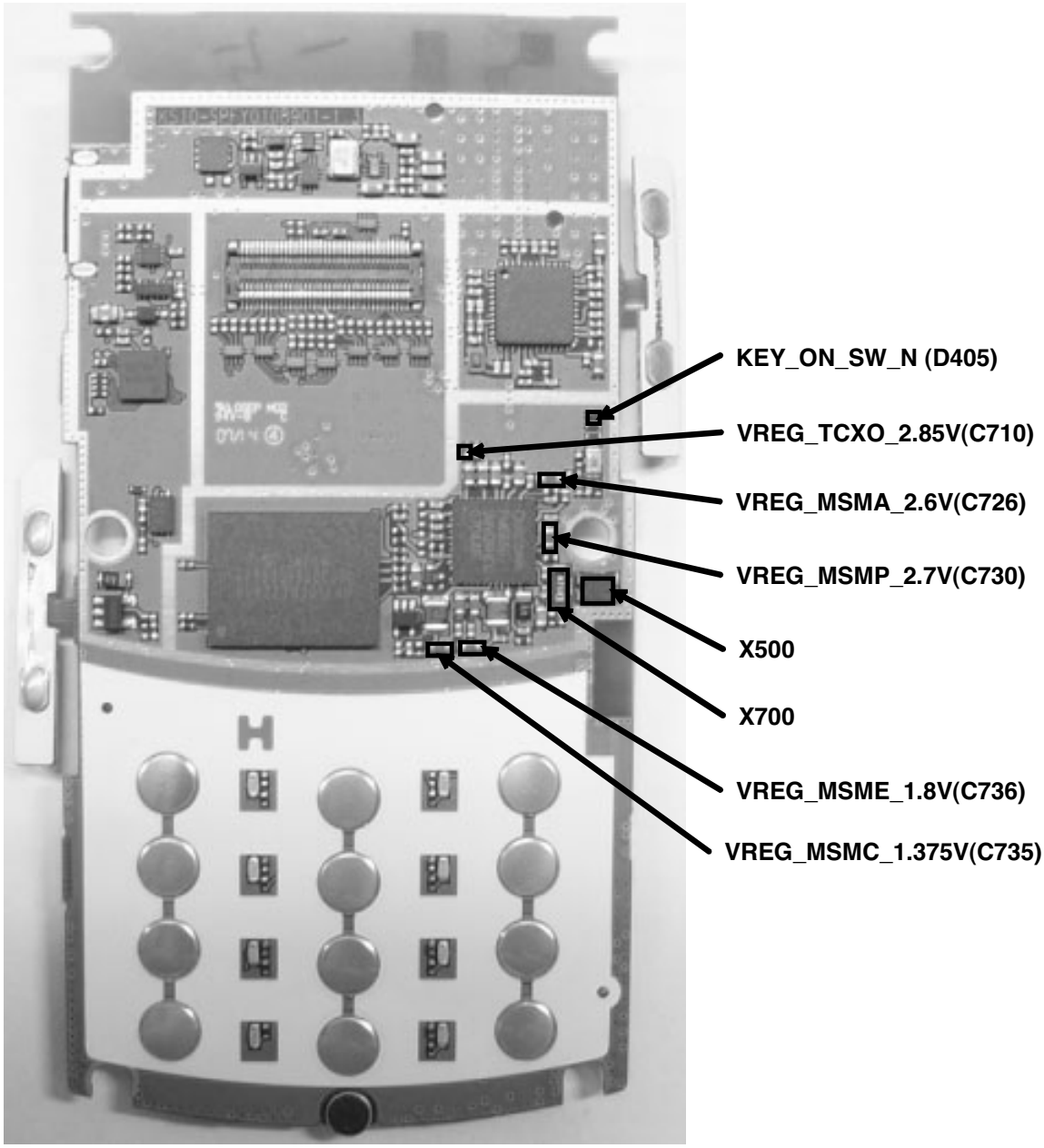
PWR key press → KEY_ON_SW_N go to low (D405, PM6650-1M KPDPWR_N pin#24) → PM6650-1M Power Up → VREG_MSMC_1.375V(C735), VREG_MSME_1.8V(C736), VREG_MSMP_2.7V(C730), VREG_MSMA_2.6V(C726), VREG_TCXO_2.85V(C710) power up → PON_RESET_N assert to MSM and PON assert to STn8810 → VDD_IO_2.7V(C304), VDD_IO_1.8V(C311),AP_VCORE(C314),AP_VPLL(C328),AP_VFUSE(C329) power up -> CPU and Phone booting & PS_HOLD(D700) assert High to PMIC(PM6650-1M)





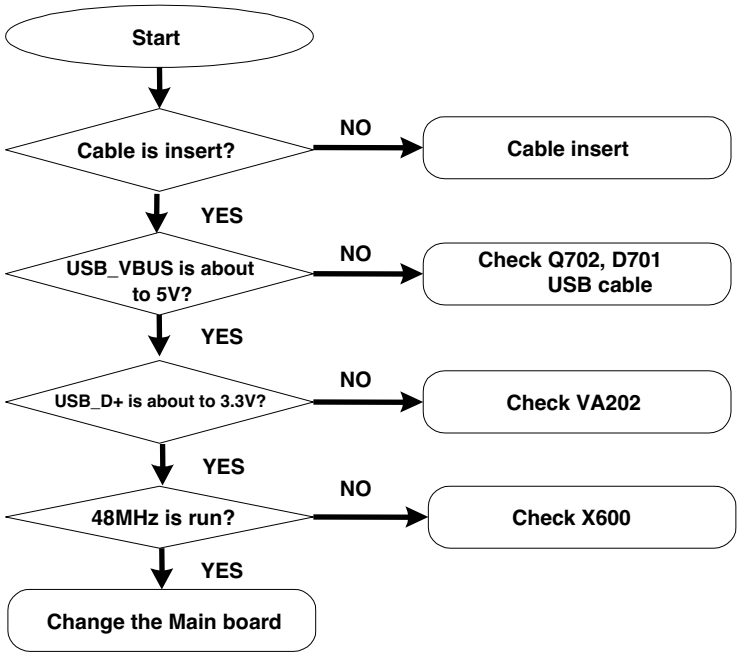
4. TROUBLE SHOOTING

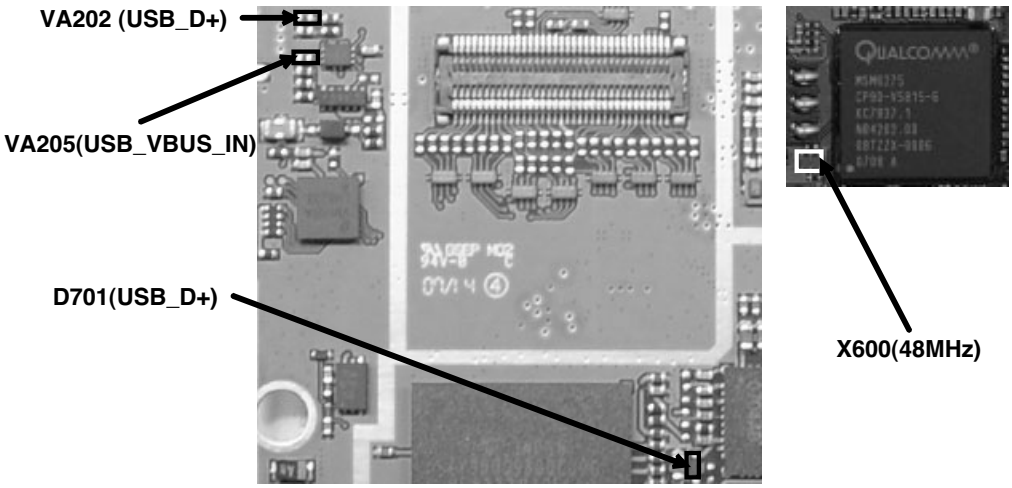




4.8 USB trouble

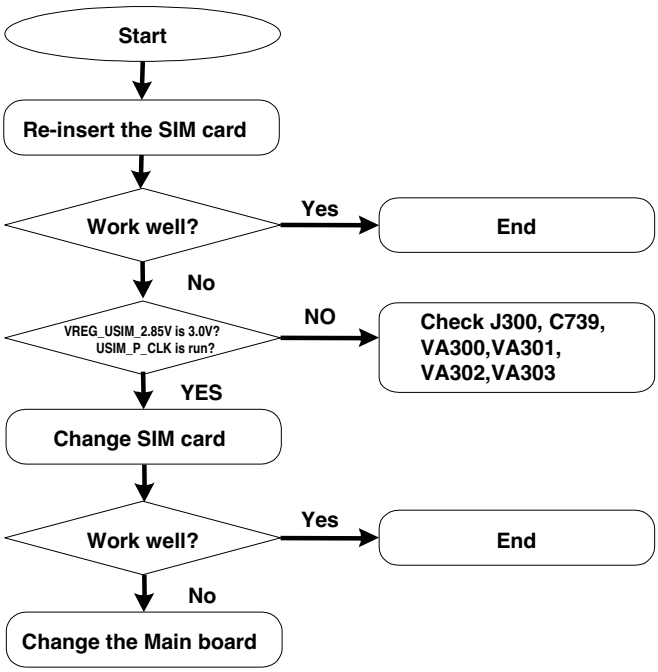
USB Initial sequence of KS10 is :
USB connected to KS10 → USB_VBUS_IN(VA205) go to 5V
→ USB_VBUS_EN go to high (Q702 Pin_2) → USB_VBUS(D701) go to 5V
→ USB_D+(VA202) go to 3.3V → 48M Crystal on → USB_DATA is triggered → USB work

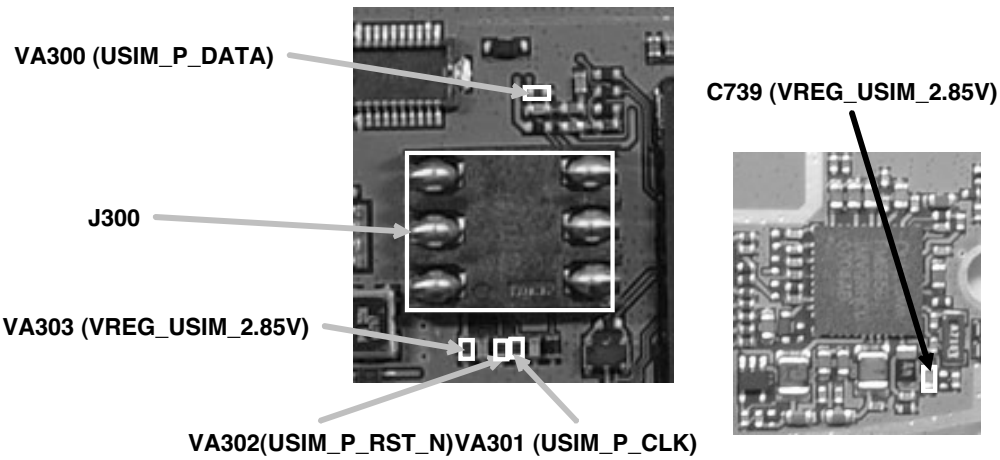




4.9 SIM detect trouble

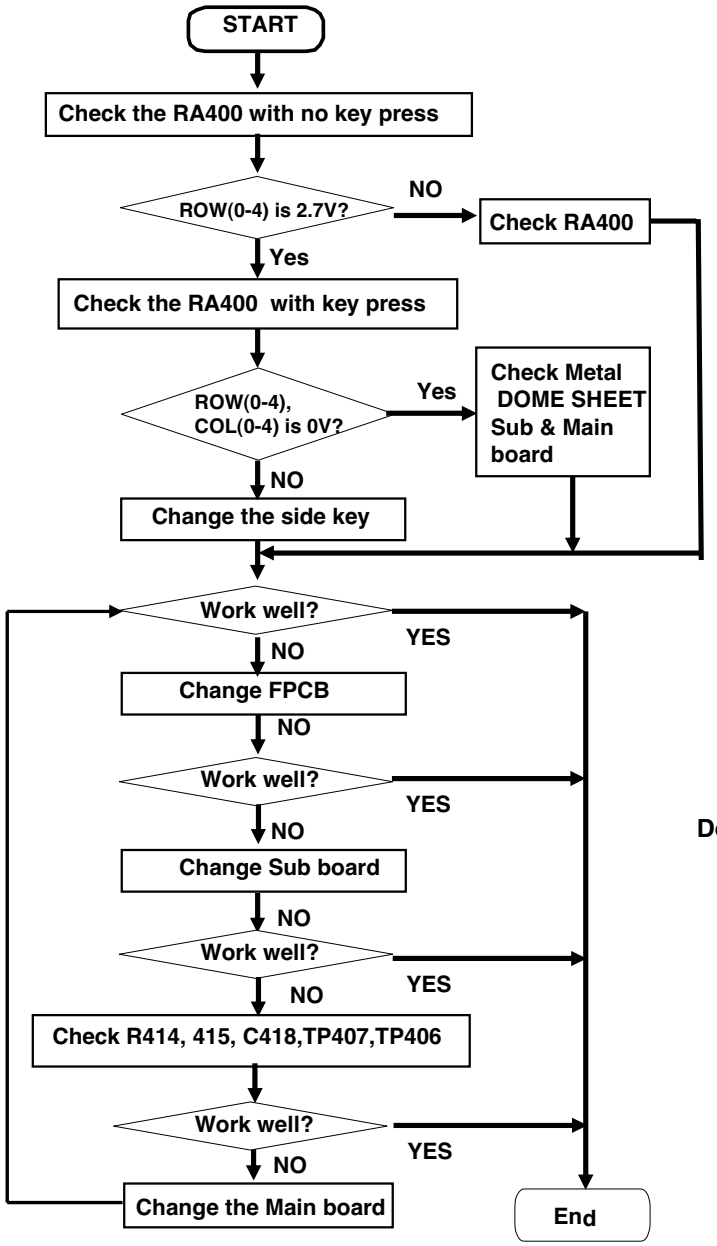
USB Initial sequence of KS10 is :
VREG_USIM_2.85V(C739 of PM6650) go to 2.85V → USIM clock, reset and data triggered
→ USIM IF work (Schematic and place are refer to SIM technical brief)

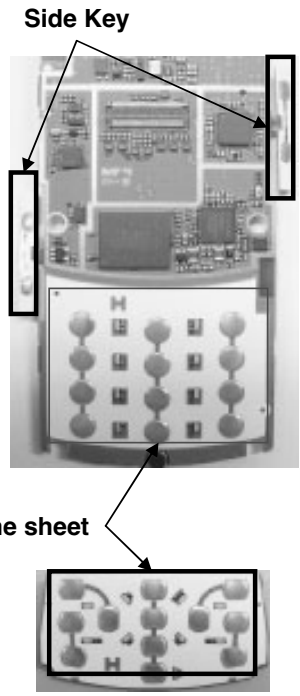


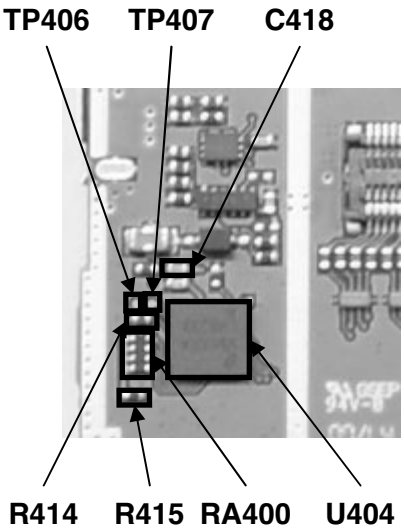


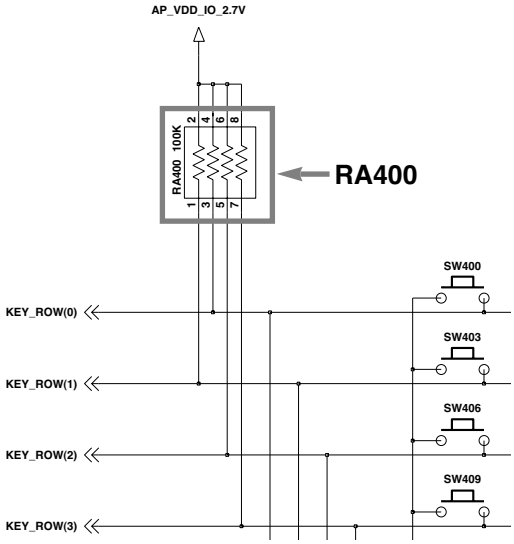
4.10 Key sense trouble

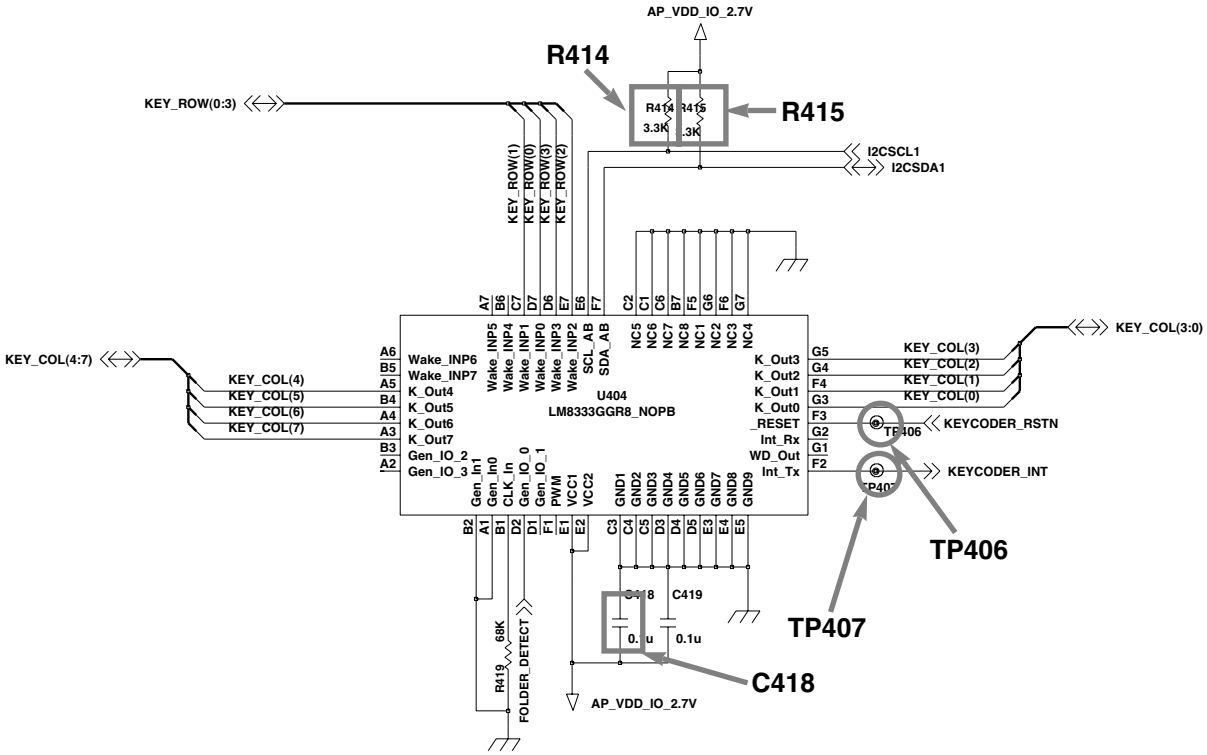
Key Sense sequence of KS10 is :
Default condition ROW(0-3) is 2.7V → Press the key → Corresponding ROW(x) and COL(x) go to 0V → Key sensing by key coder IC (U404) → Key coder IC send the key information to CPU by I2C interface







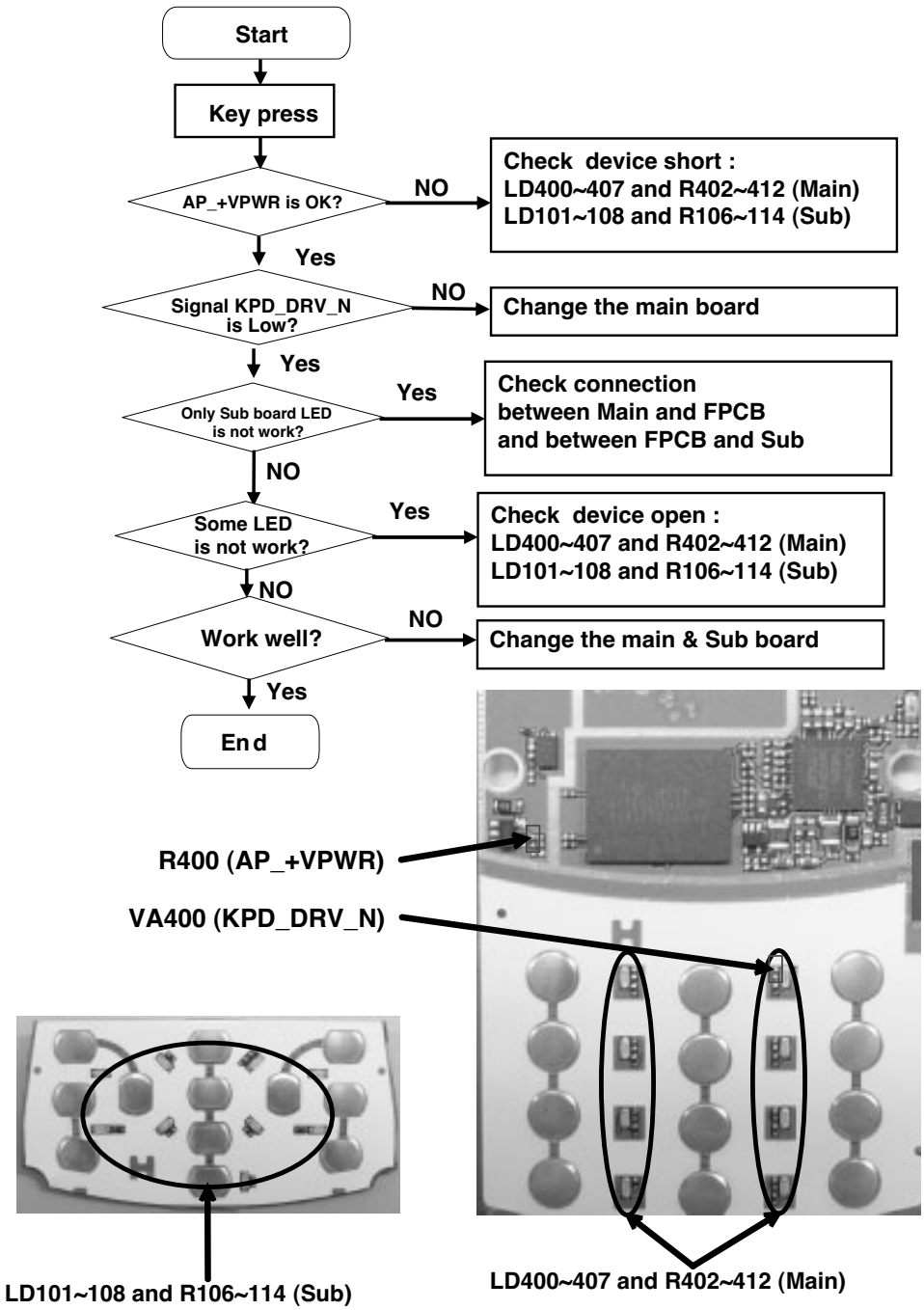




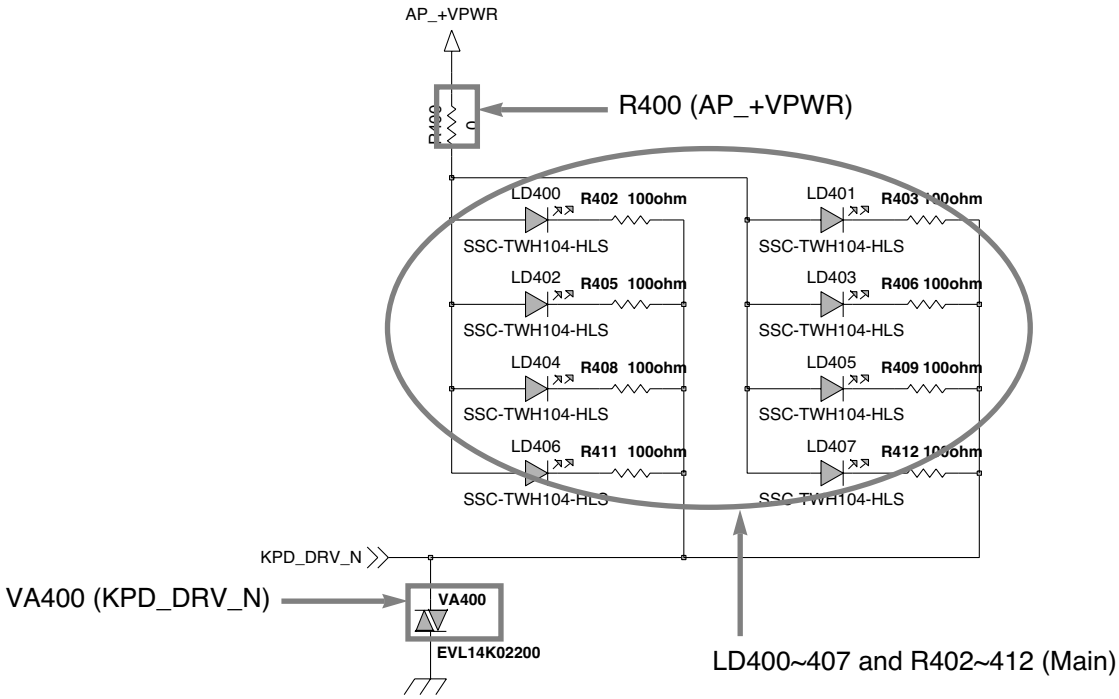
Schematic of key sense part

4.11 Keypad backlight trouble

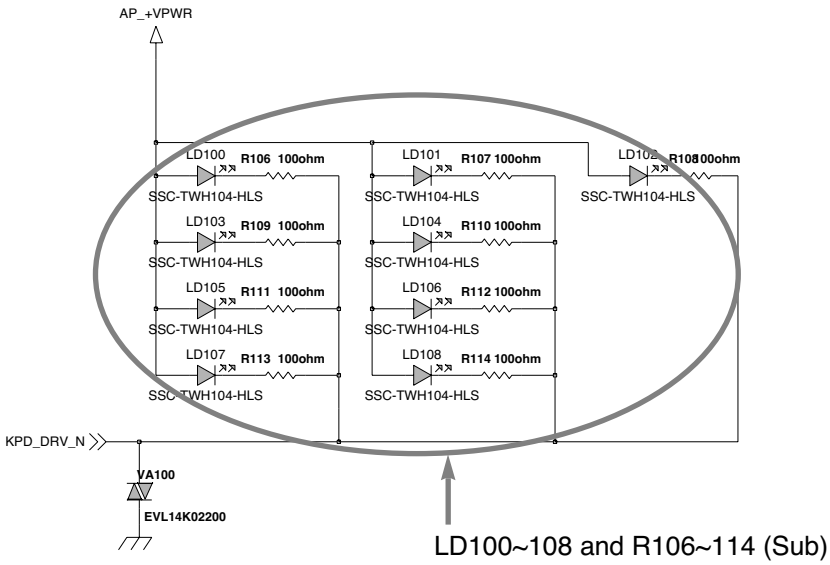
Key Pad Back Light is on as below :
Key pressing → STn8810 commend MSM6275 lighting the Key LED →
MSM 6275 KPD_DRV_N go to Low → LED On (Key Pad LED controlled by PM6650)



Main



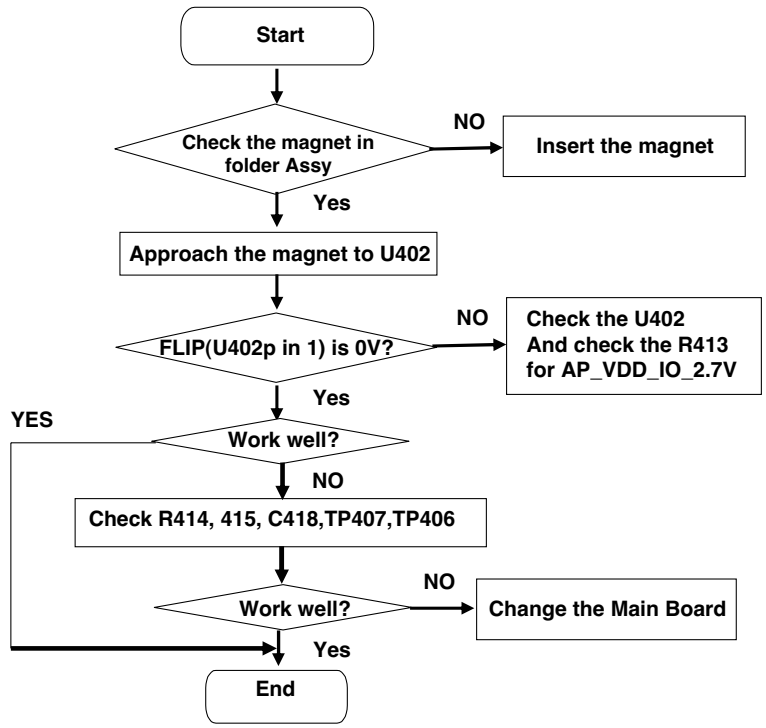
SUB

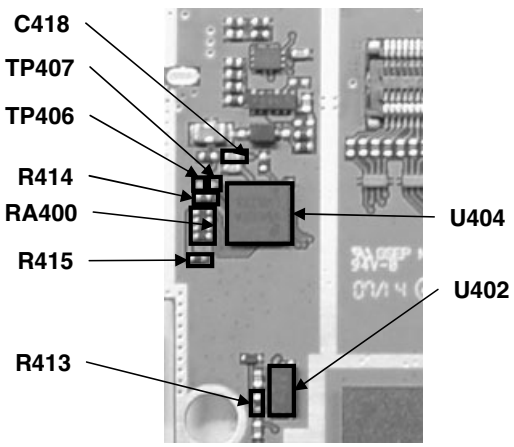


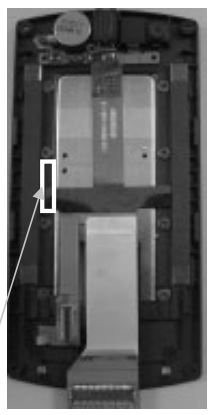
Schematic of keypad backlight part

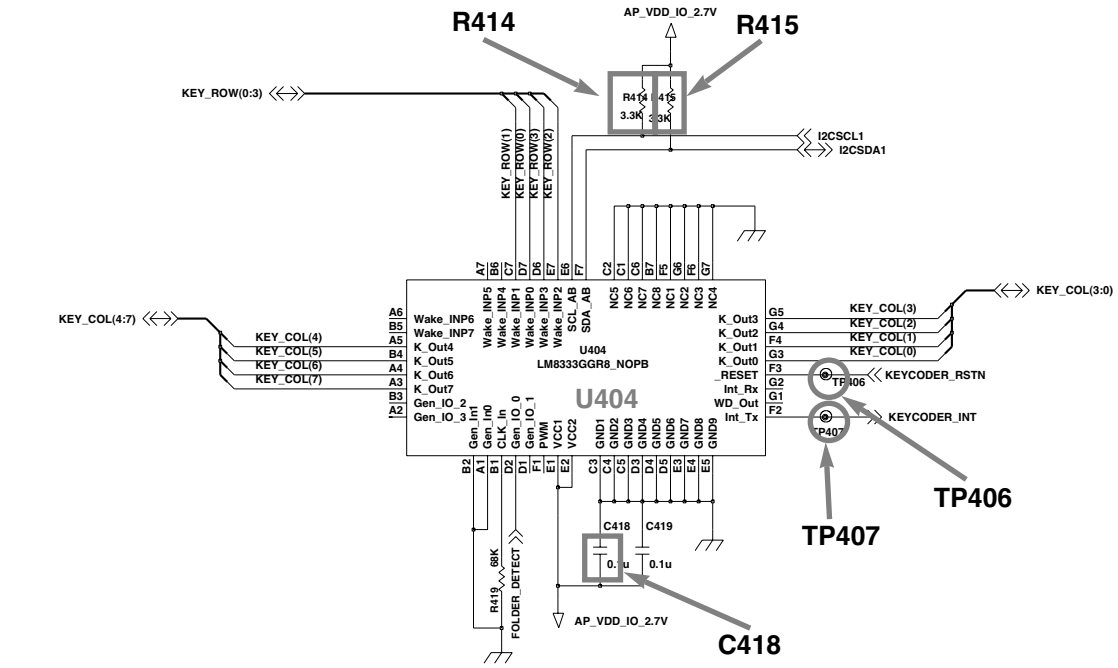
4.12 Folder on/off trouble

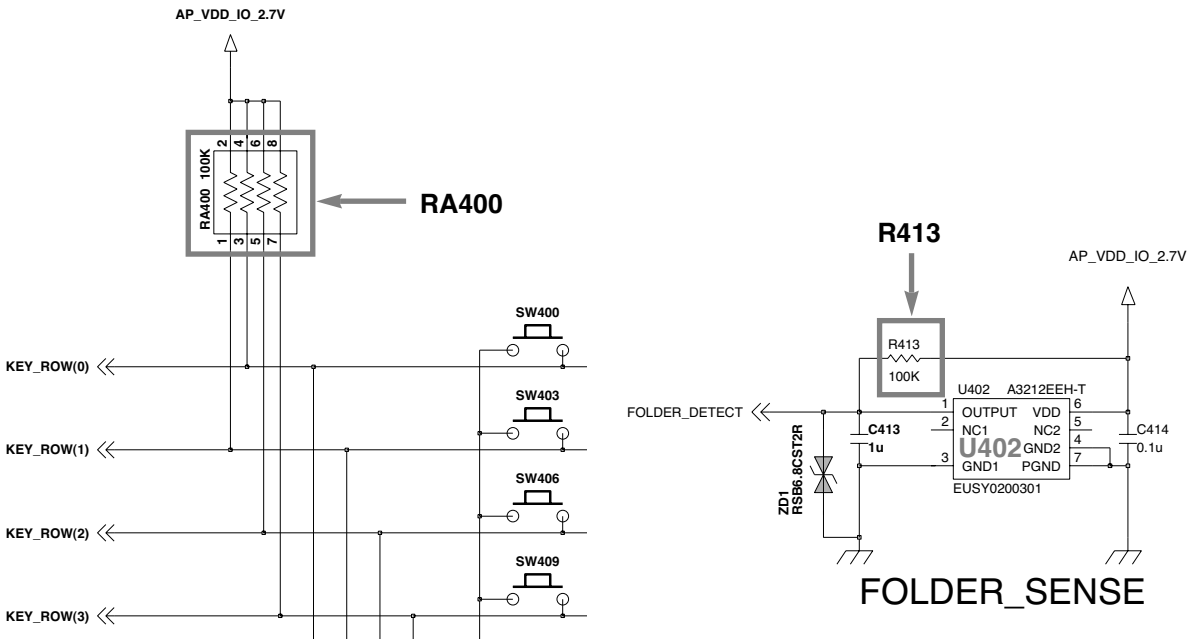
Folder On/Off(Close/Open) is worked as below :
Folder On/Off Event → Flip(U402 pin 1,key board) is triggered(Open : about 2.7V, Close : 0V) → Key coder IC(U404) sense the Folder Flip Event → Key coder IC send the key information to CPU by I2C interface







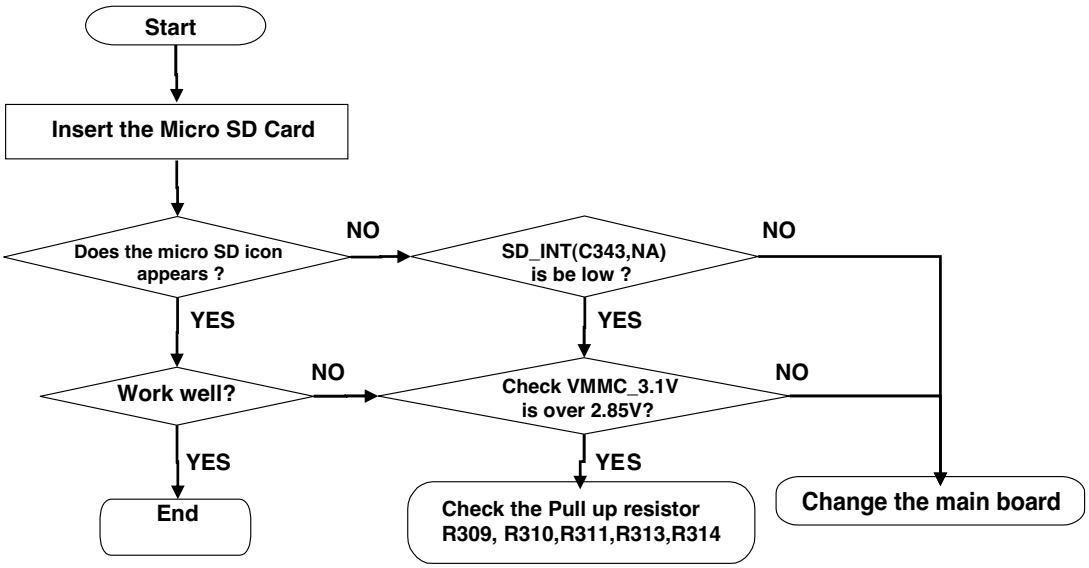


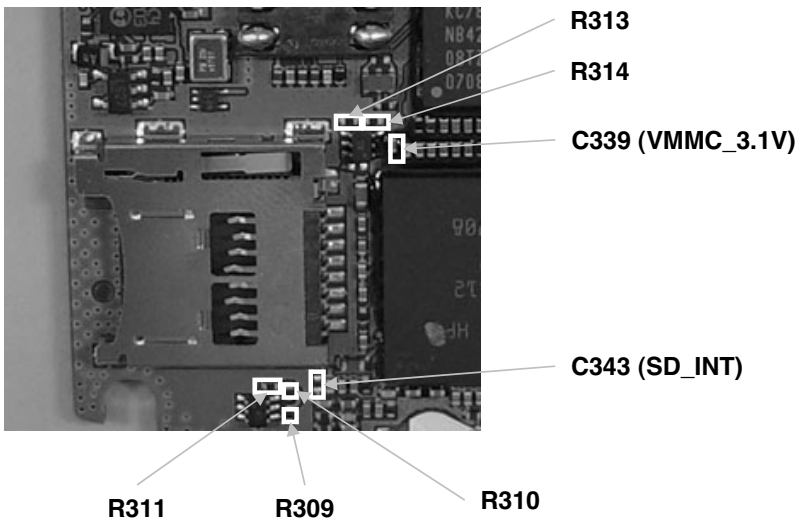


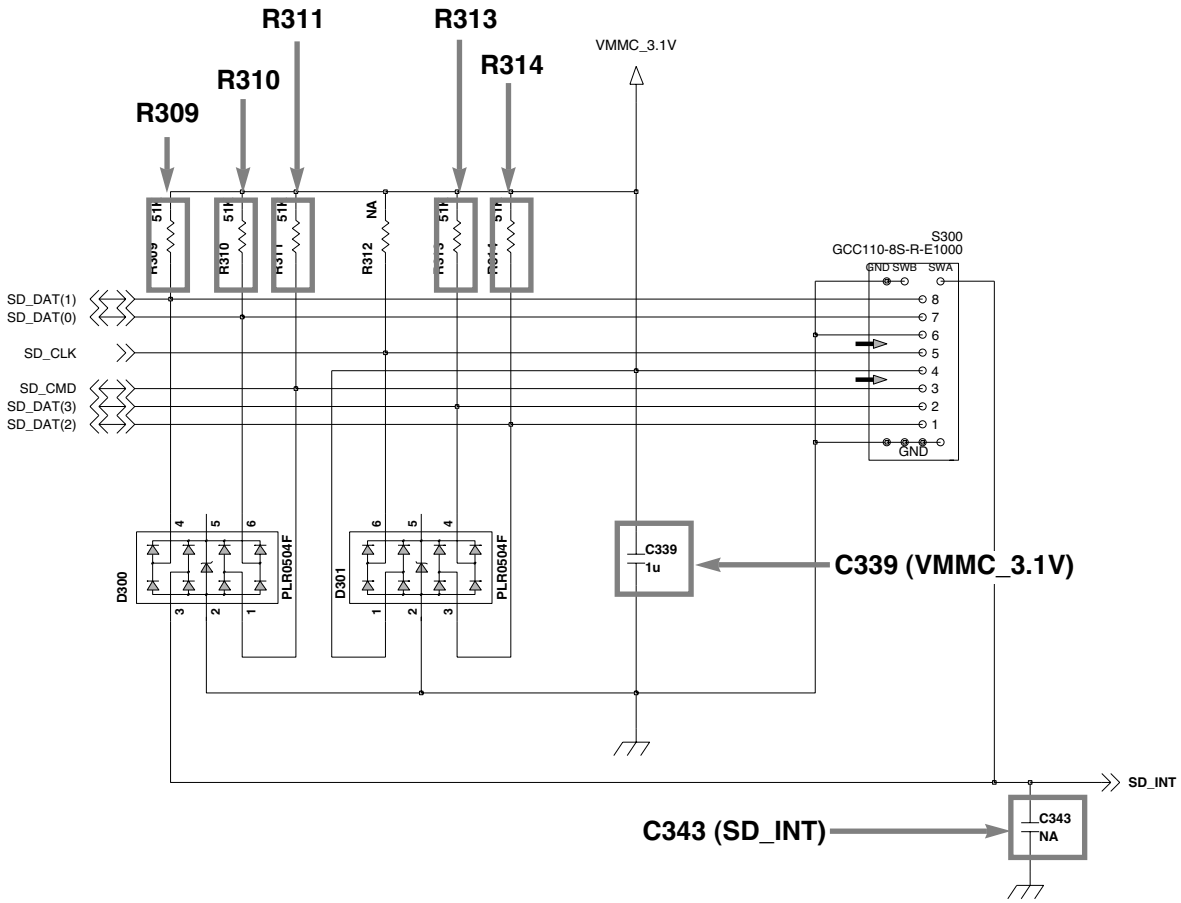
Schematic of Folder on/off part

4.13 Micro SD trouble

Micro SD is worked as below :
Micro SD insertion → Card Detect (SD_INT) goes to low → STn8810 detect SD_INT and assert VMMC_3.1V by STw4810 → go working

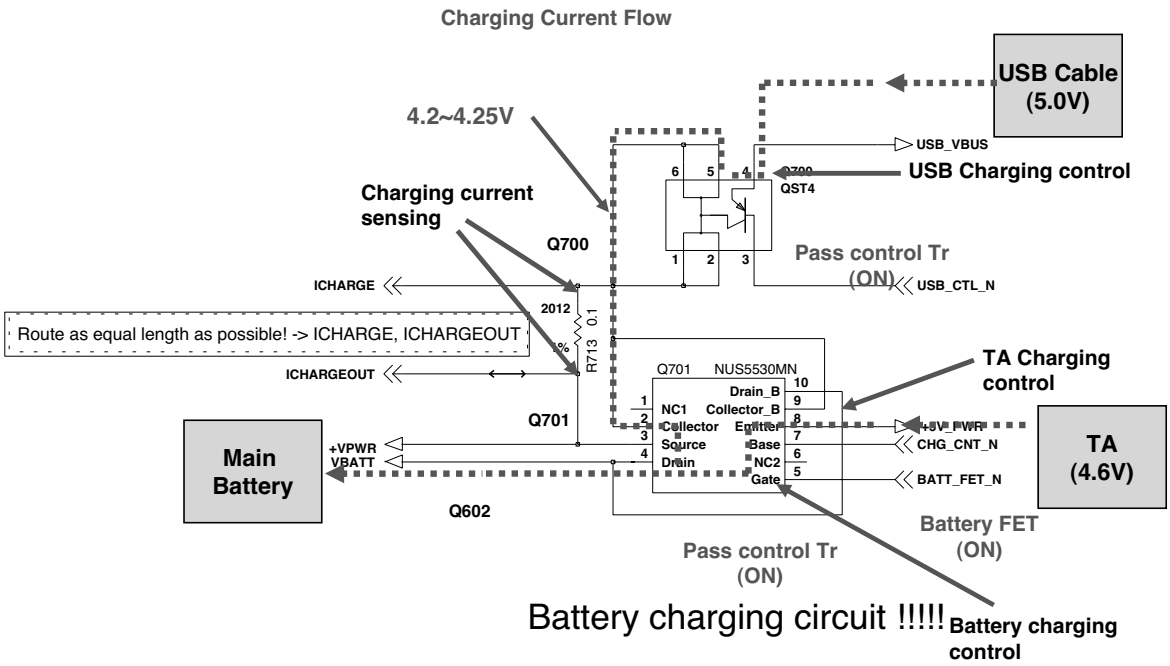






Schematic of Micro SD

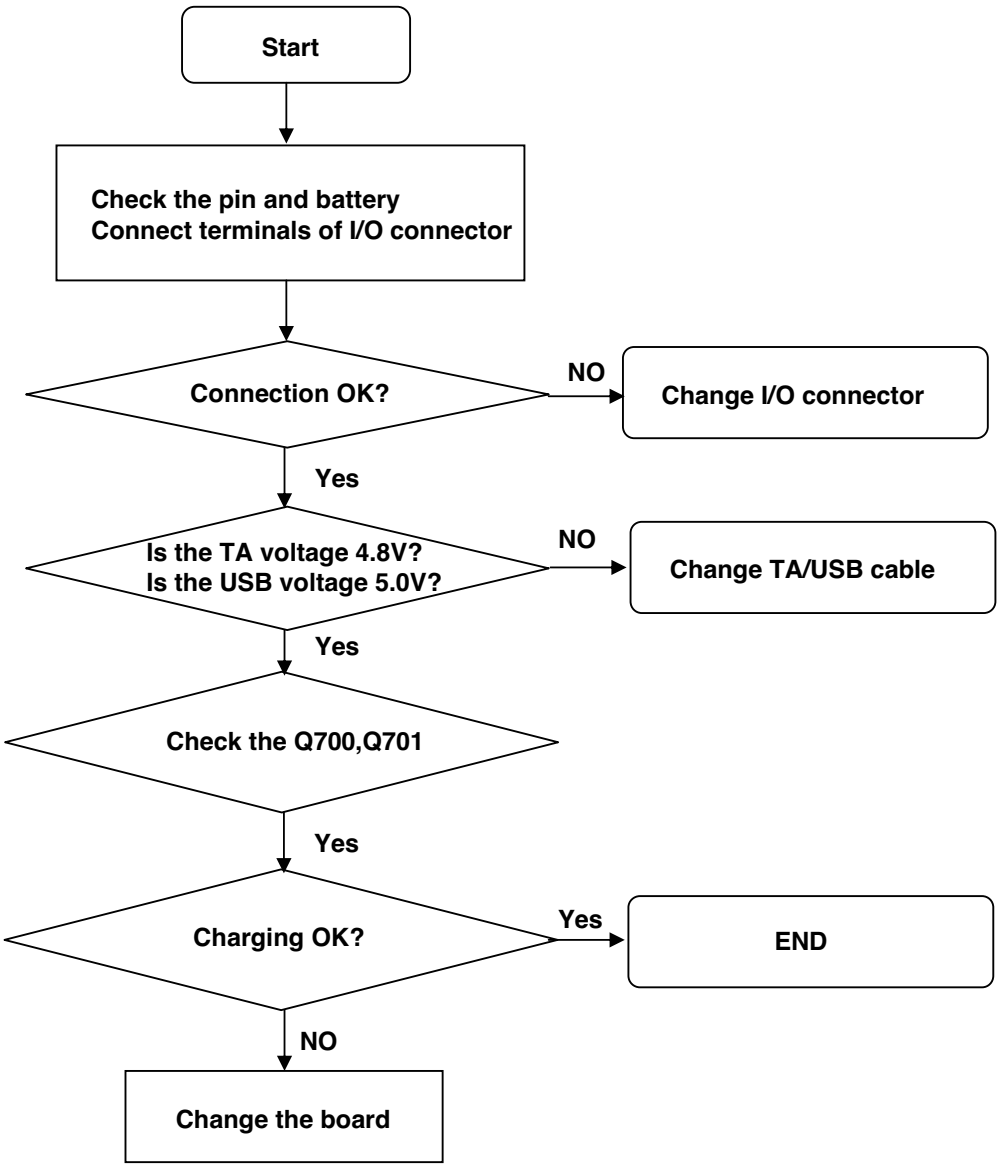
4.14 Charging trouble

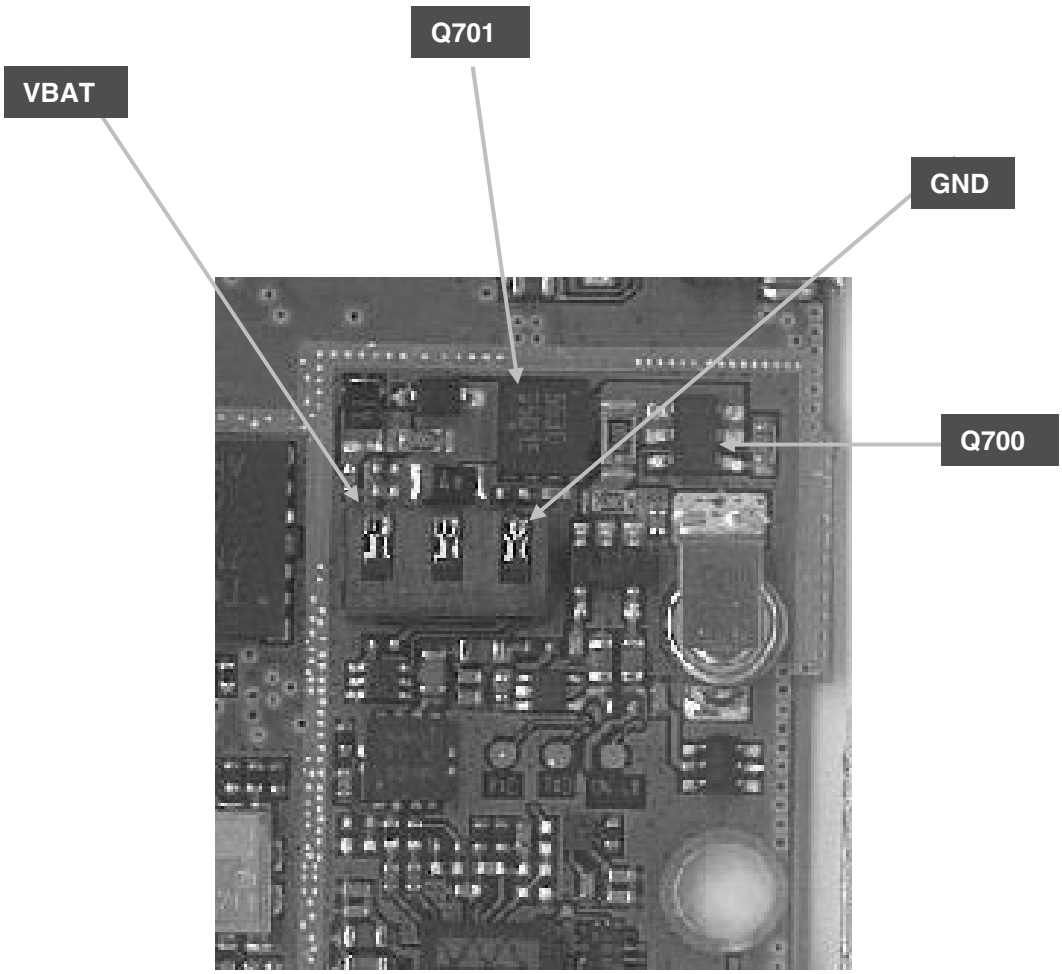


• Charging Procedure
- Connecting TA or USB Cable
- Control the charging current by PM6650-1M IC using USB_CNT_N or CHG_CNT_N signal
- Charging Current flows into the battery by control BATT_FET_N
• Check Point
- Connection of TA or USB Cable
- Charging current path
- Battery

• Trouble Shooting Setup
- Connect TA or USB Cable and battery to the phone

• Trouble Shooting Procedure
- Check the charger connector
- Check the charging current path
- Check the battery

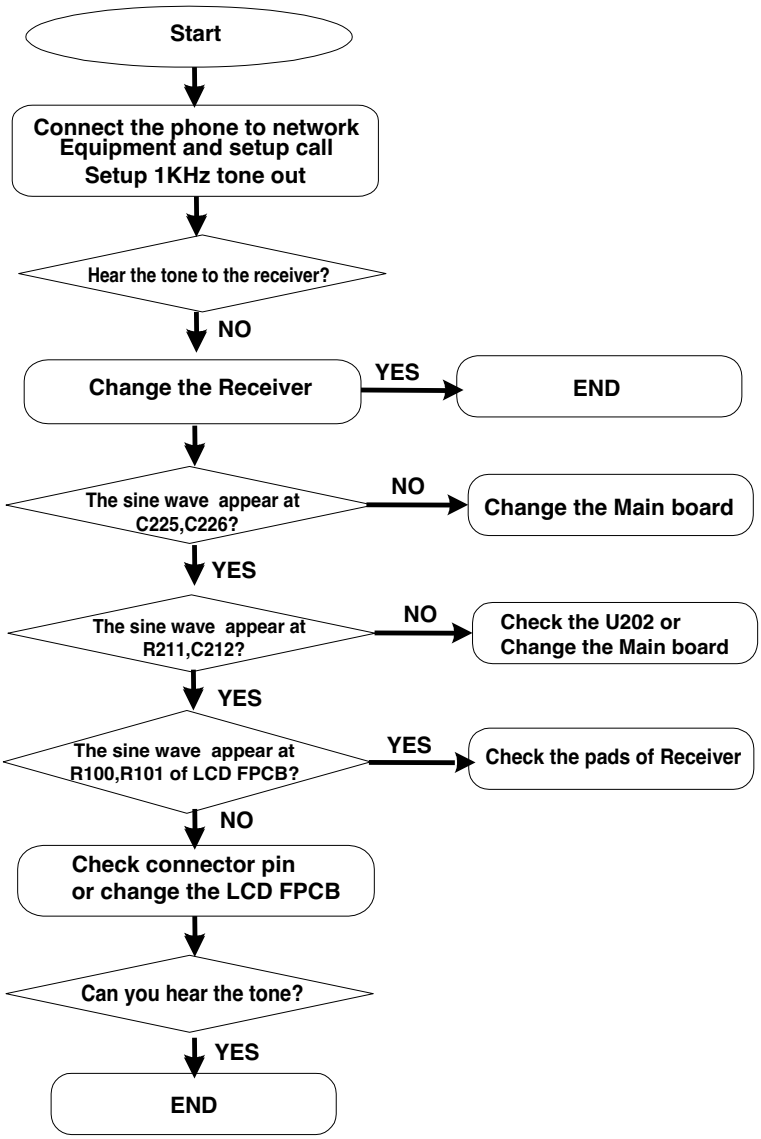


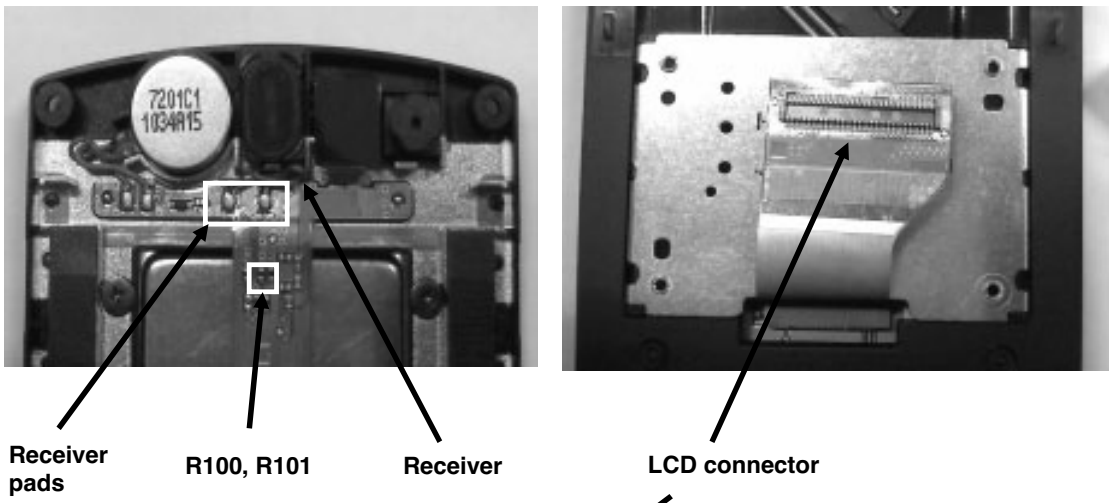


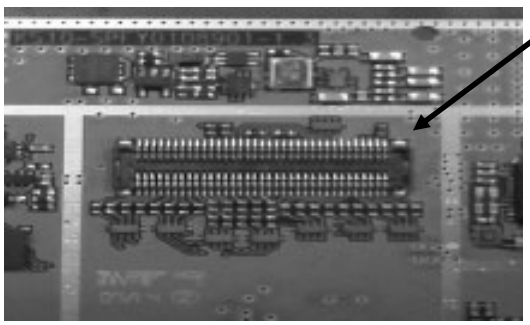
4.15 Audio trouble

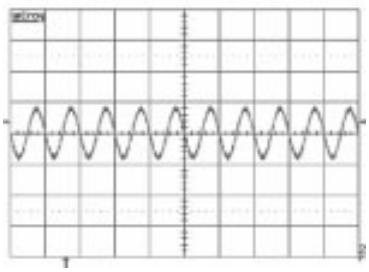
4.15.1 Receiver path

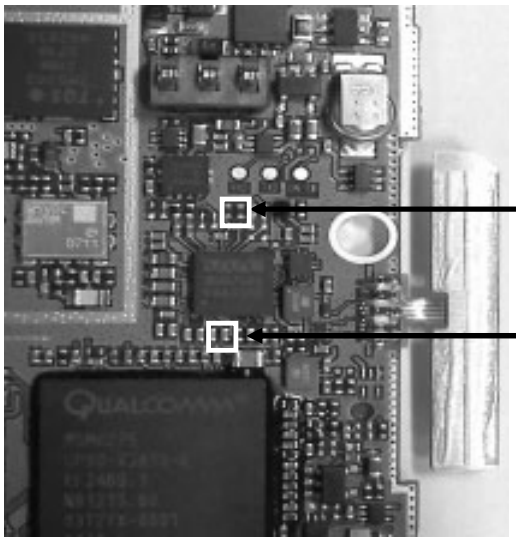
Voice Receiver path as below:
MSM6275A Ear1ON/Ear1OP → U202(audio codec) → CN201(b'd to b'd connector for LCD Module) → CN102(LCD b'd to b'd connector of LCD FPCB) → R100, R101 → Receiver





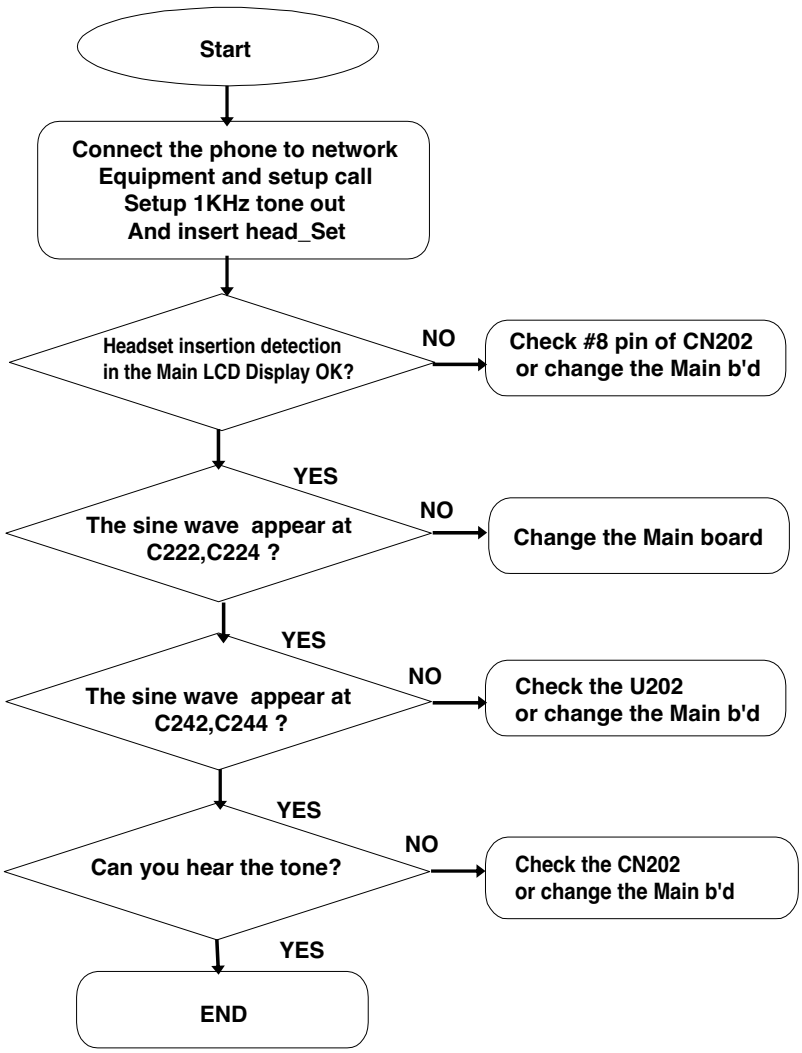


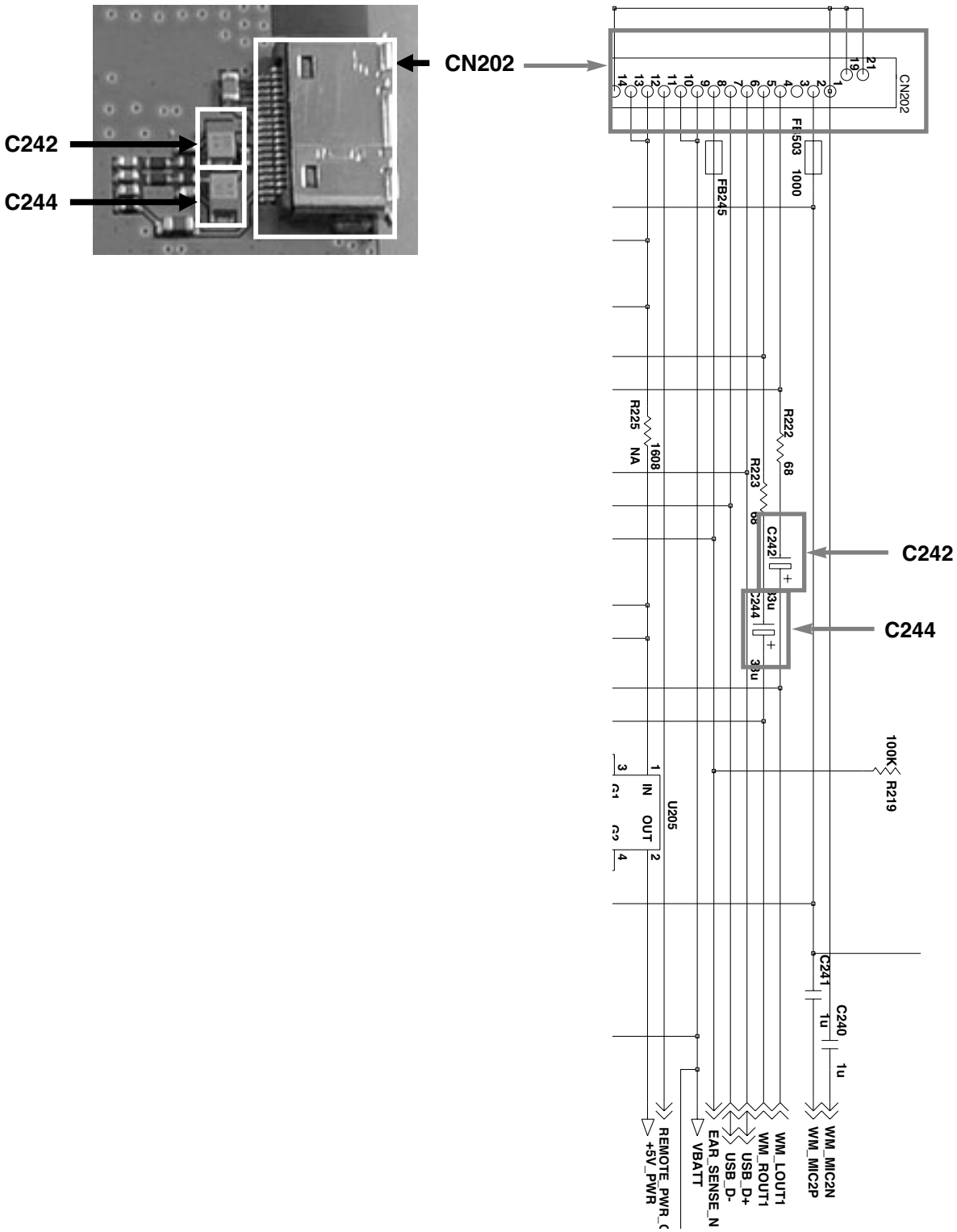




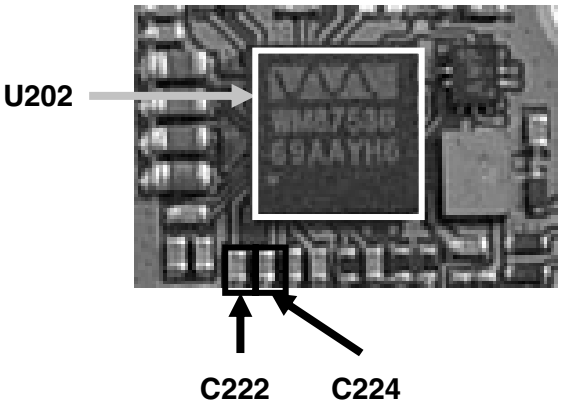
4.15.2 Voice path for headset

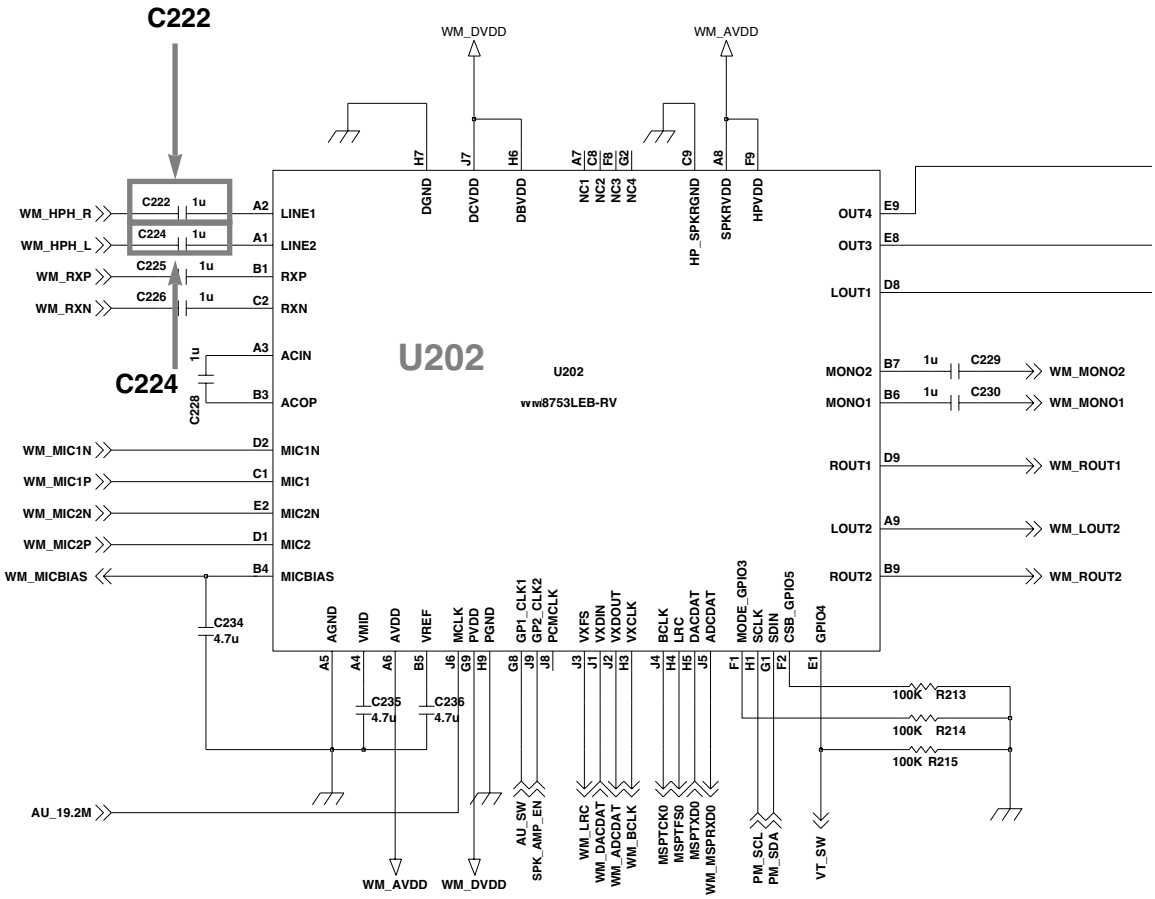
Voice path for Head_Set as below:
MSM6275A HPH_R, HPH_L → C222,C224 U202(audio codec) → FB702, FB704 → C242,C244 → #4, #5 pin of CN202 headset Jack





Schematic of voice path

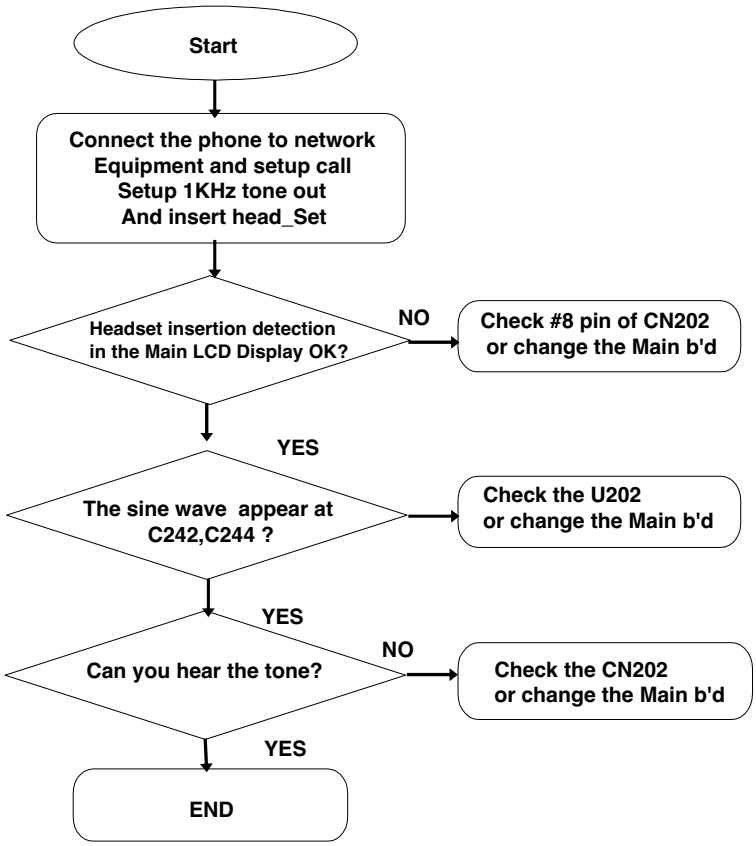


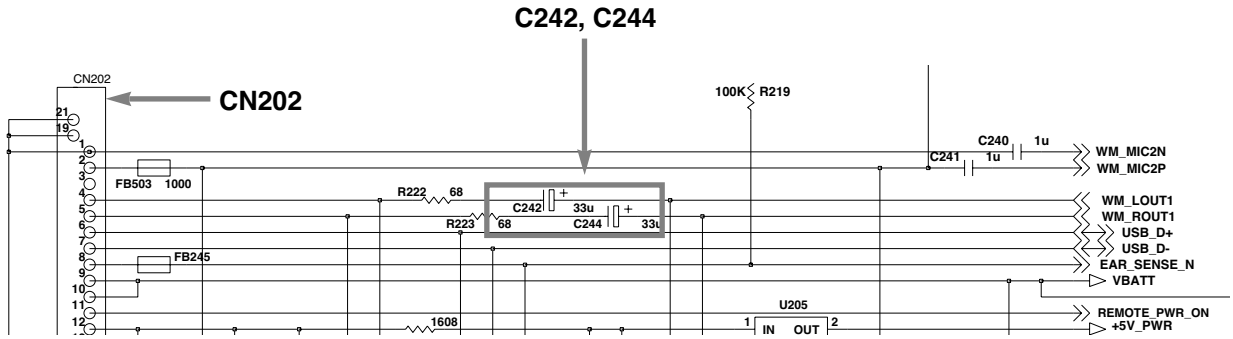


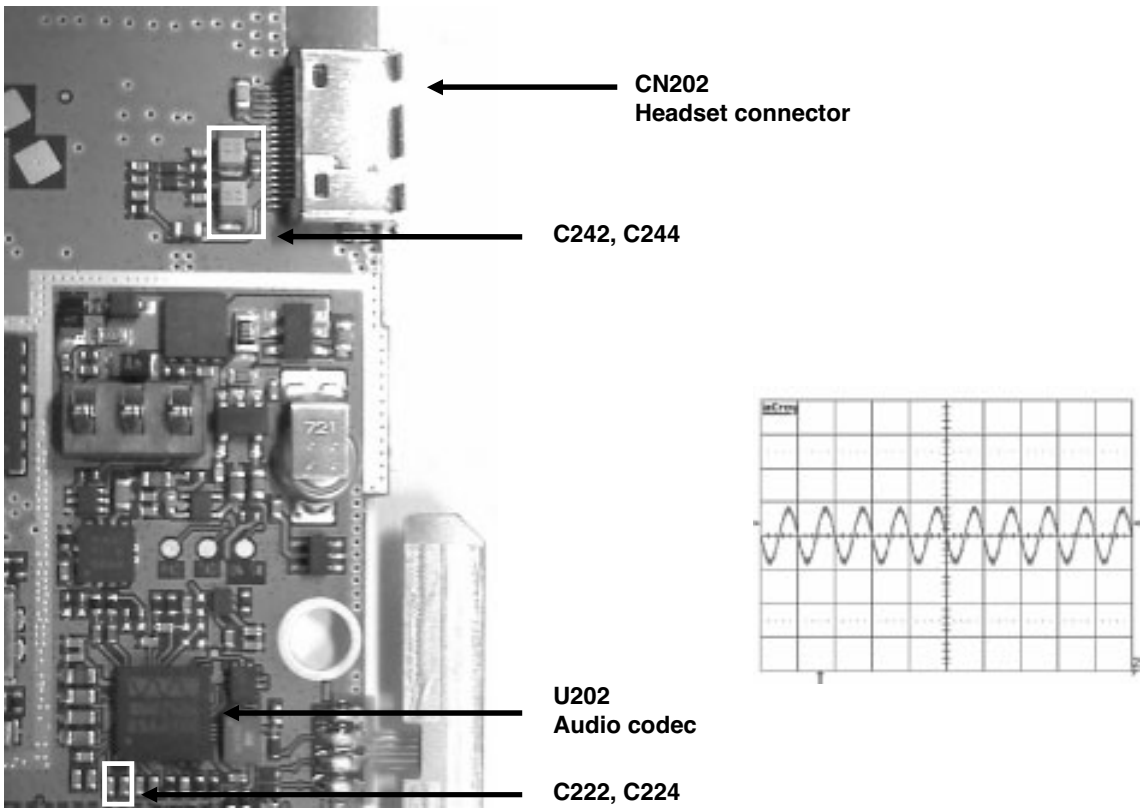
Schematic of voice path

4.15.3 Sound path for headset

Multimedia Sound path for Head_Set as below:
STN8810(msptxd0) → U202(audio codec) → C242,C244 → #4,#5 pin of CN202 headset Jack

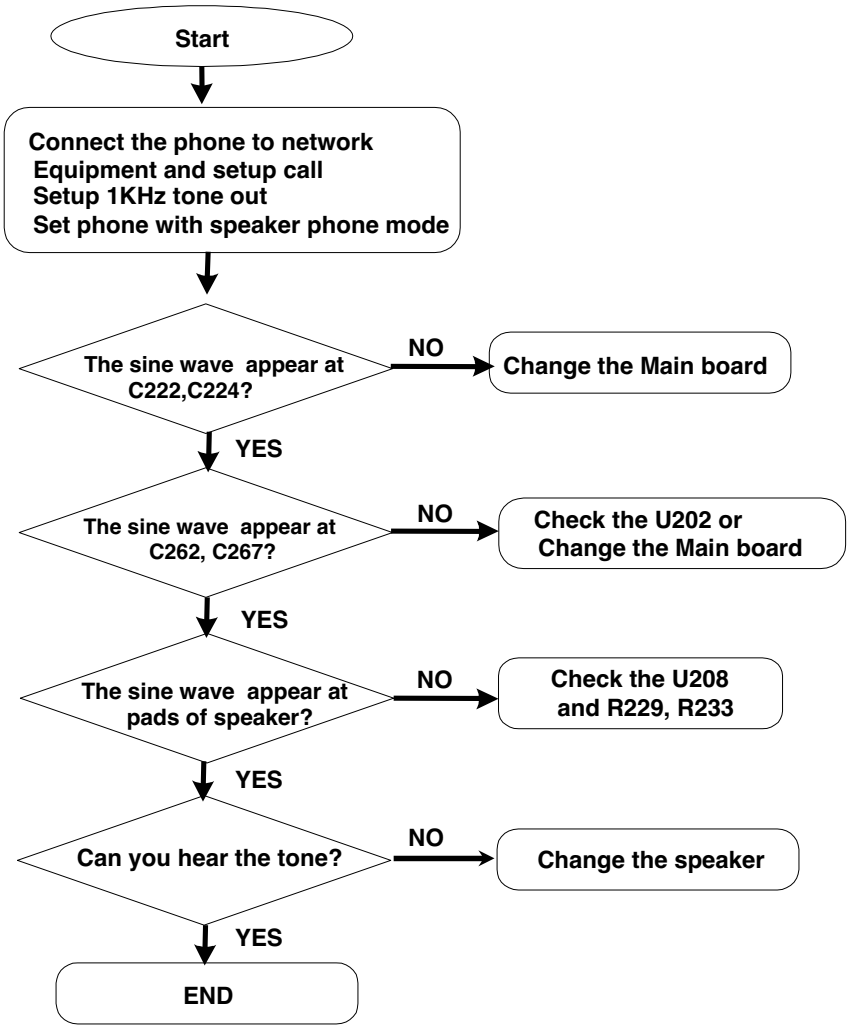


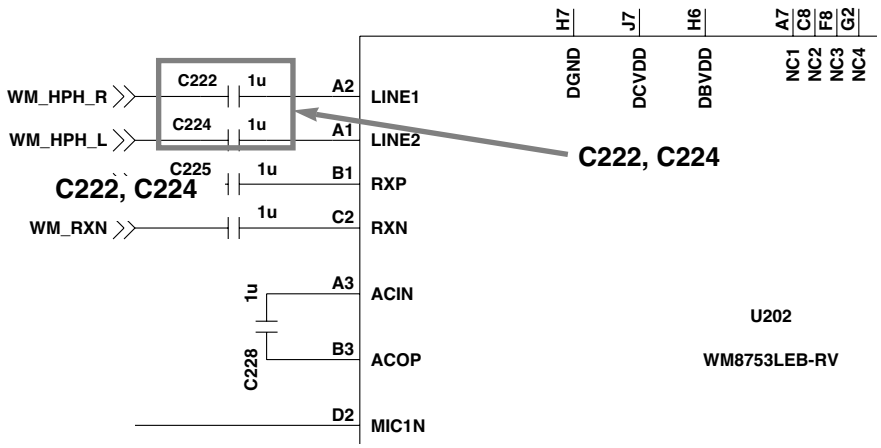


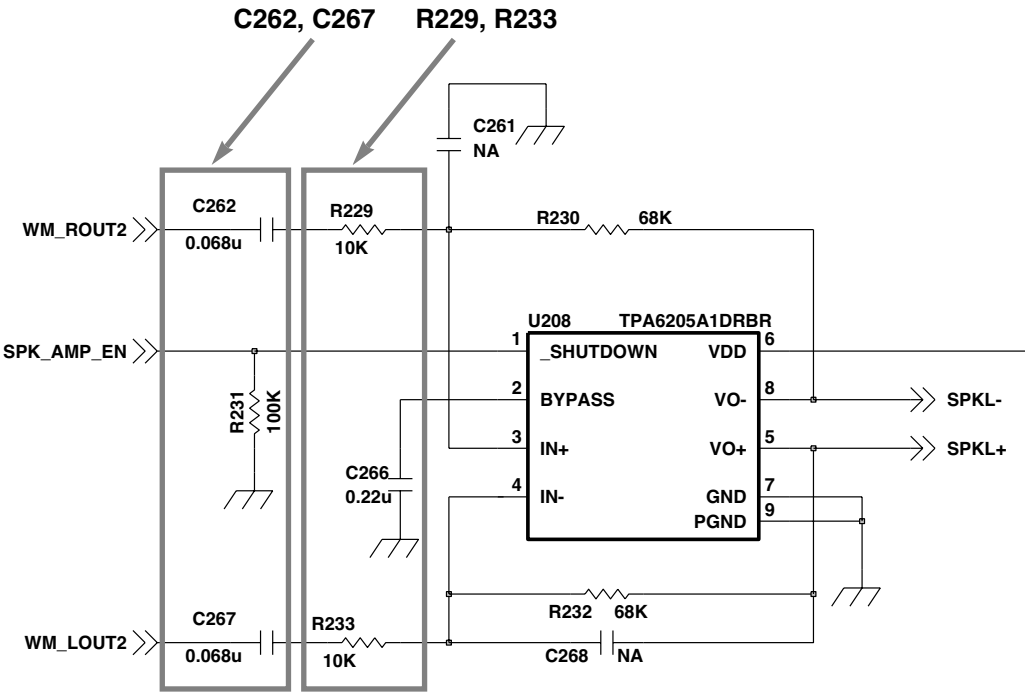


4.15.4 Loud speaker path (voice speaker phone)

Loud speaker path as below:
MSM6275A HPH_R, HPH_L → C222,C224 → U202(audio codec) → C262,C267 → U208 (Speaker AMP) → pads of speaker → Speaker

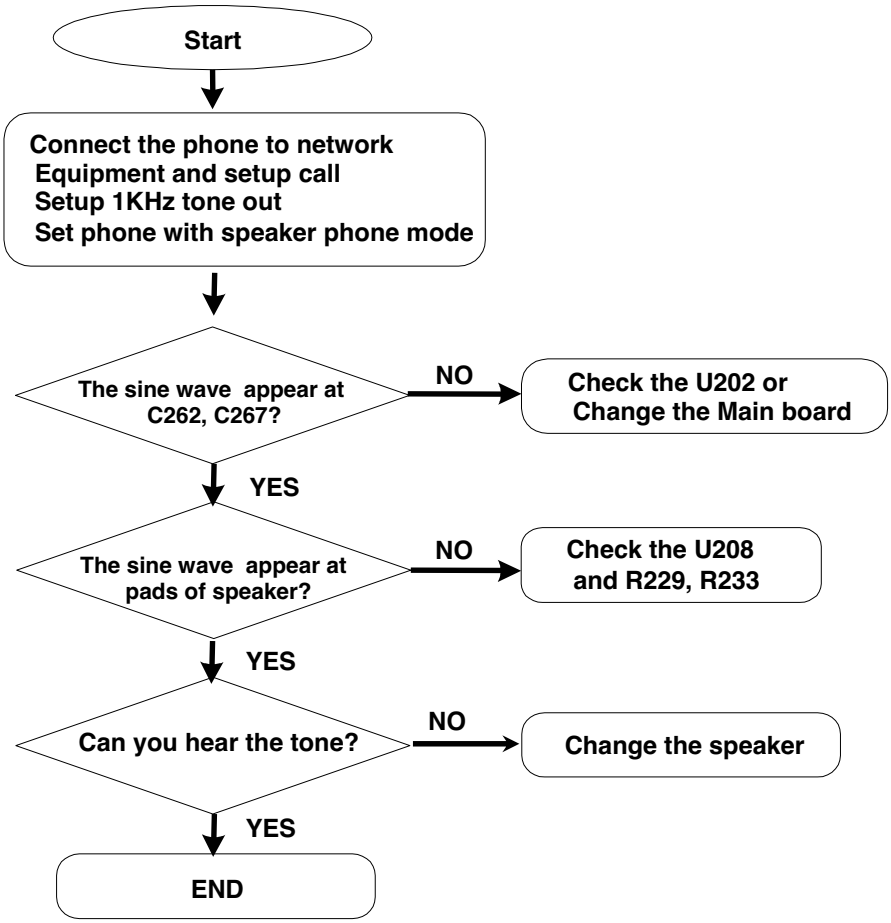


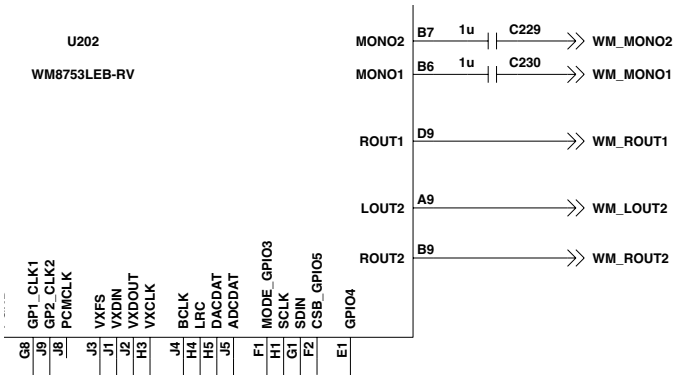




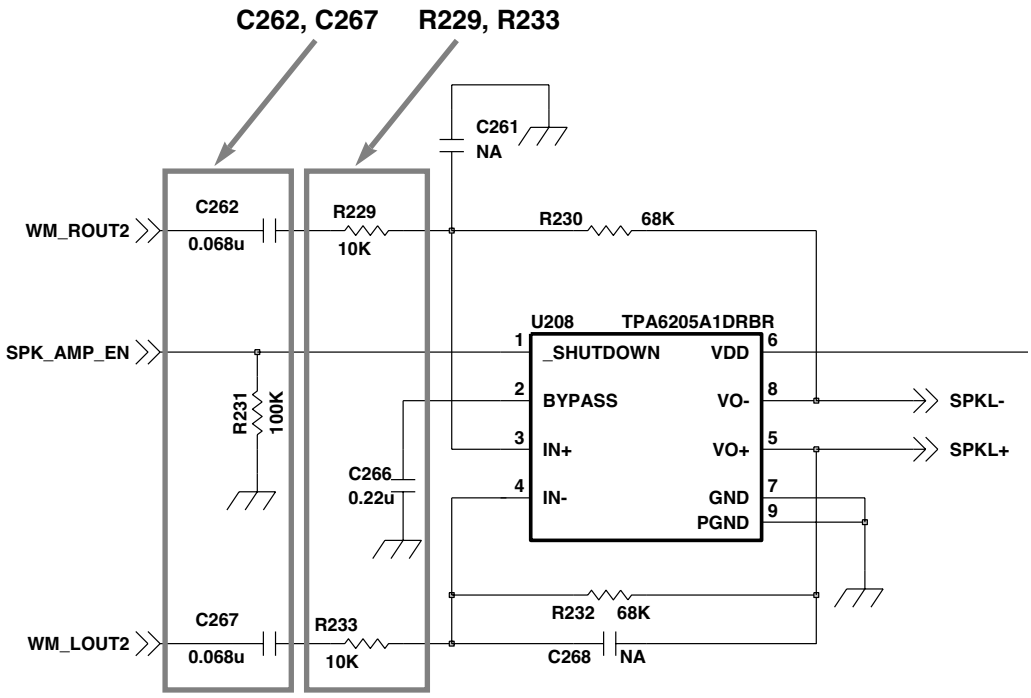
4.15.5 Loud speaker path (VT, multimedia play, etc)

Loud speaker path (VT, multimedia play) as below:
STN8810(msptxd0) → U202(audio codec) → C262,C267 → U208 (Speaker AMP) → pads of speaker → Speaker

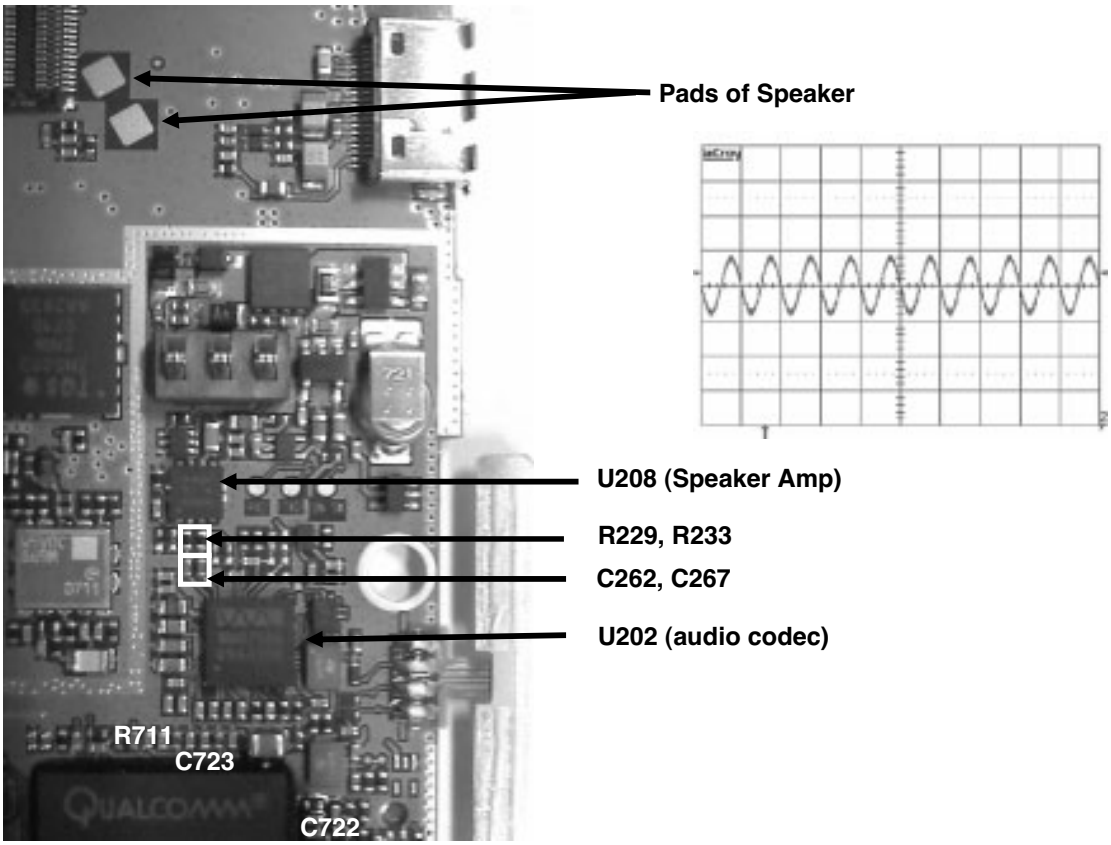




Audio Codec

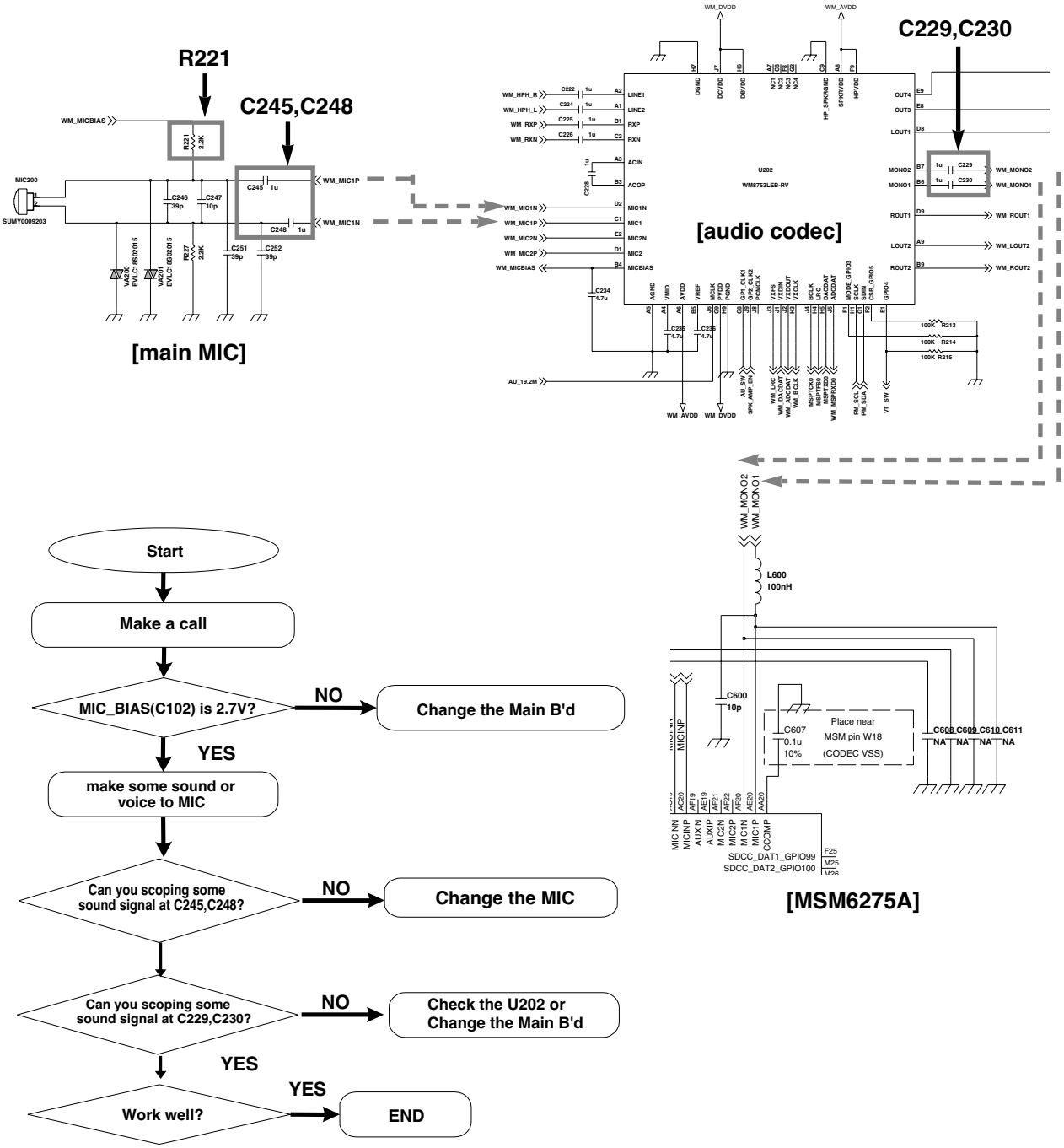


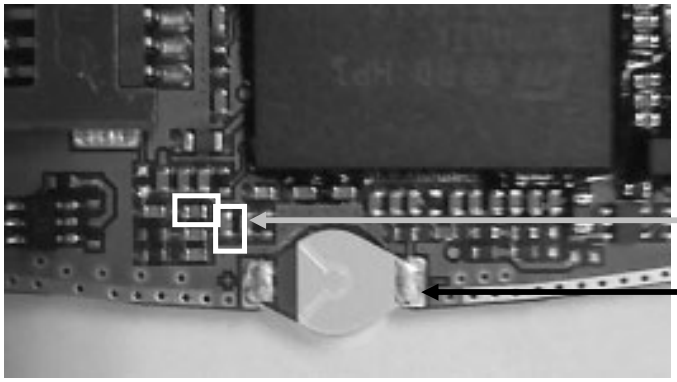
Speaker AMP

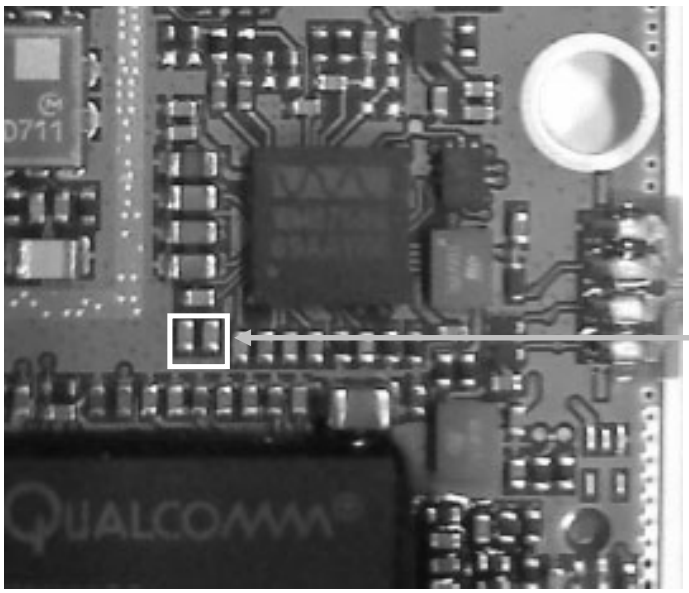


4.15.6 Microphone for main MIC

Main Microphone path as below:
MIC → C245,C248 → U202(audio codec) → C229,C230 → MSM6275A →
MIC feed back gain logic → MSM internal CODEC

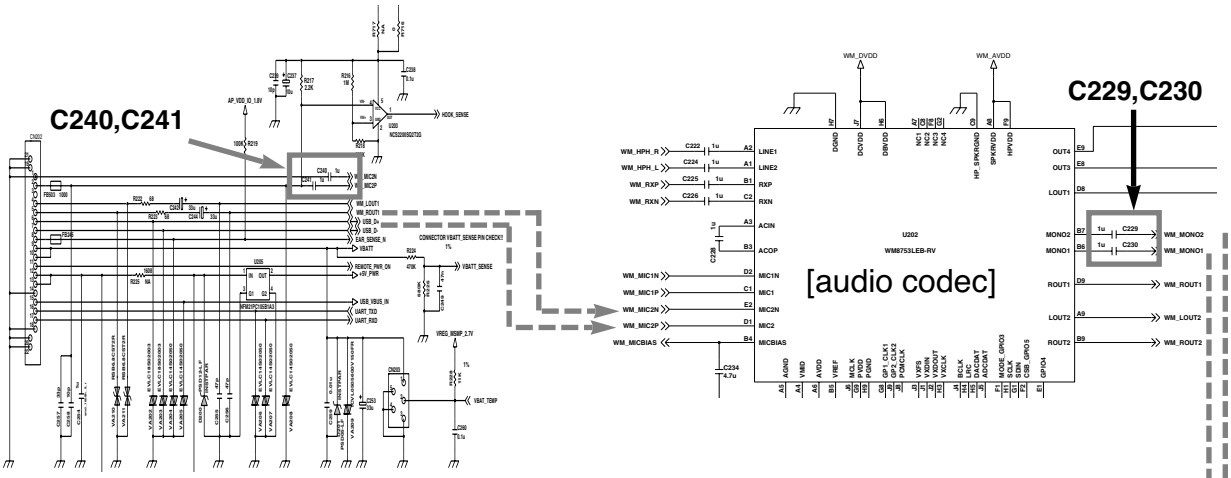




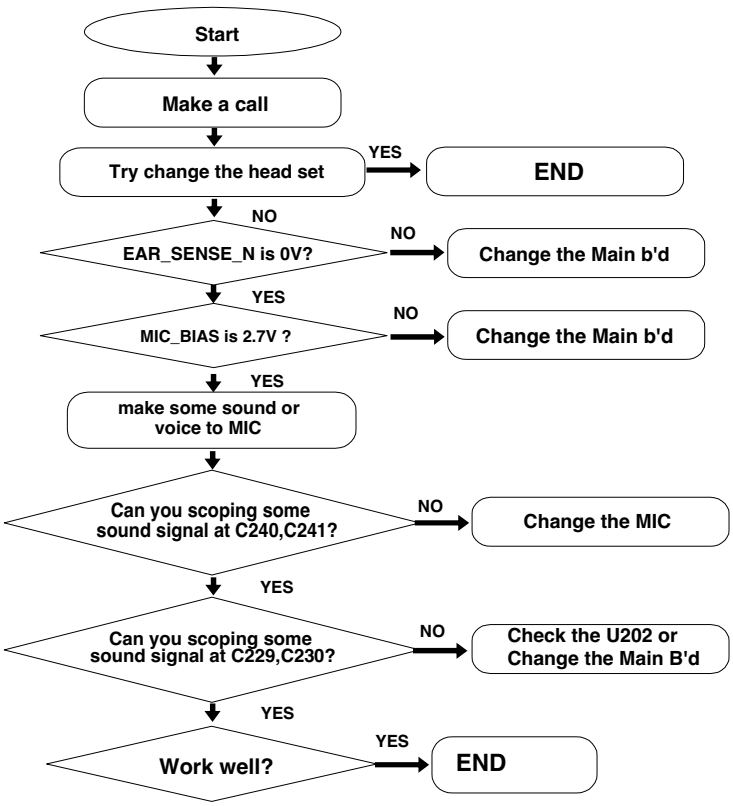


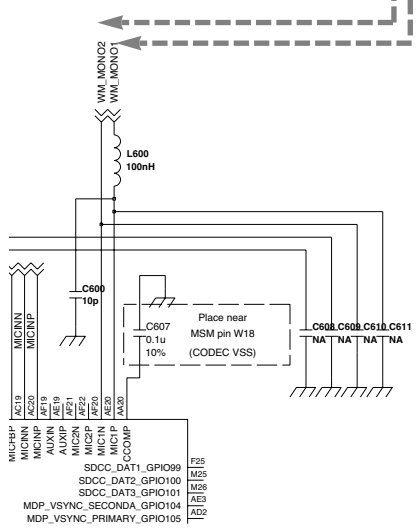
4.15.7 Microphone for headset

MIC for Head_Set path as below:
Insert Headset → EAR_SENSE_N(pin8) go 0V → MSM6275A and STN8810 sense Head_Set insertion → MIC signal → U202(audio codec) → MSM6275.

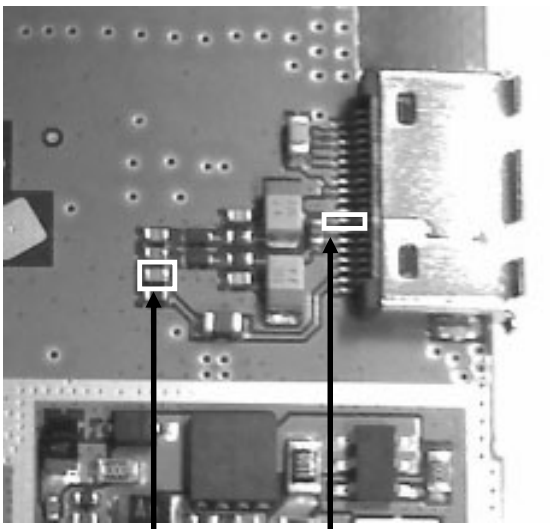


[CN202(headset connector)]



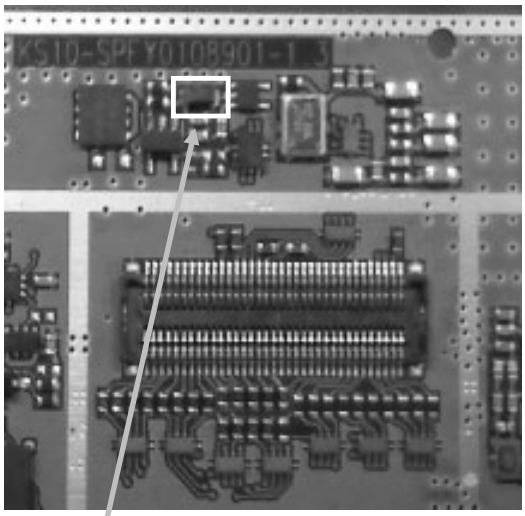


[MSM6275A]

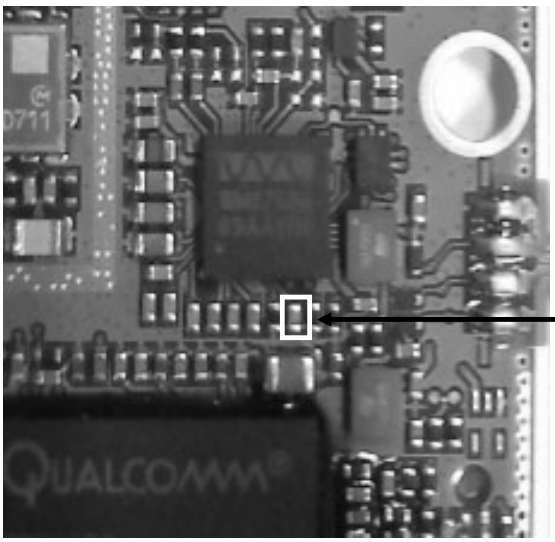


C240

#8 pin of ear connector
to check EAR_SENSE_N



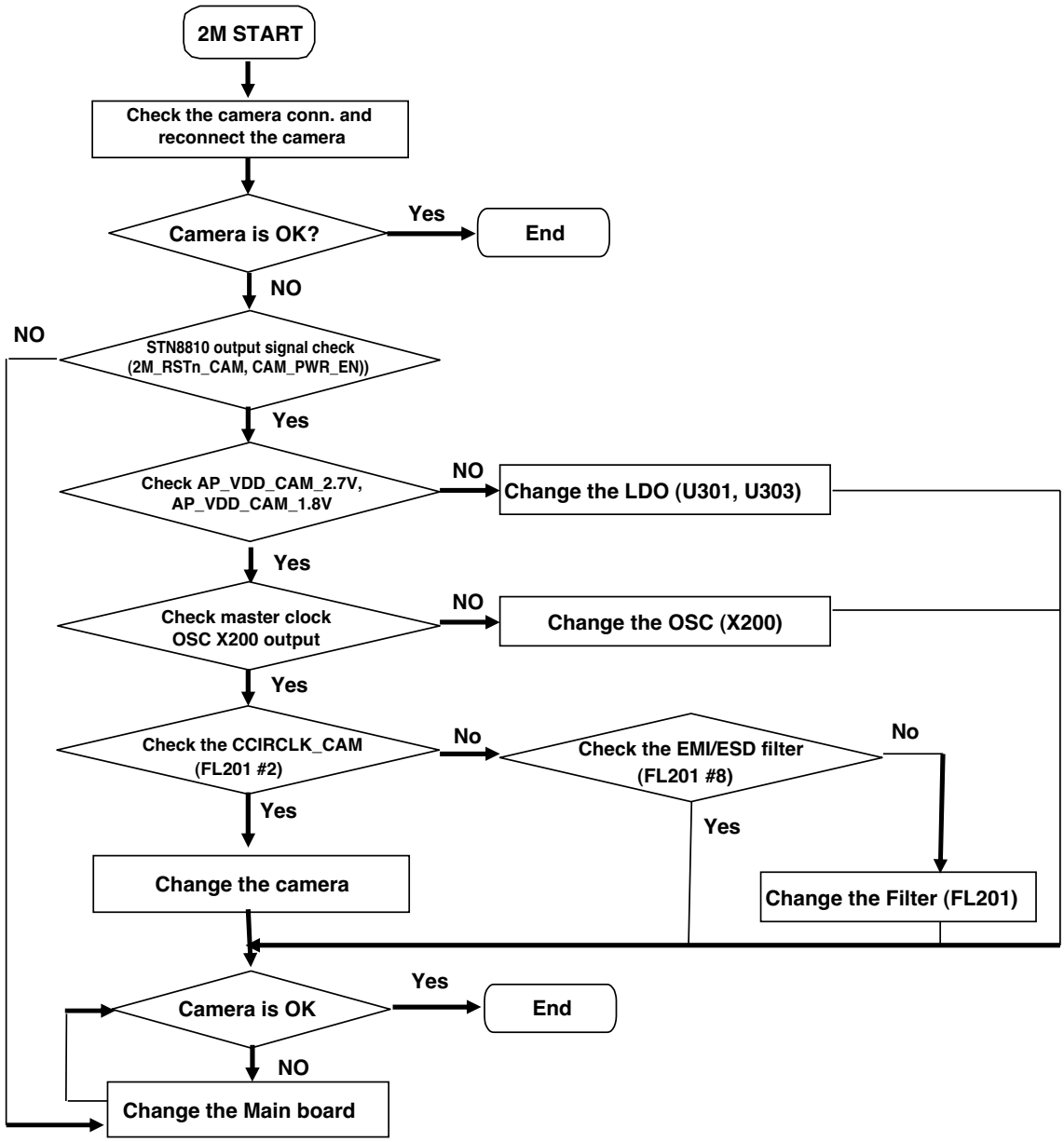
C237
Capacitor to check MIC bias (2.7V)

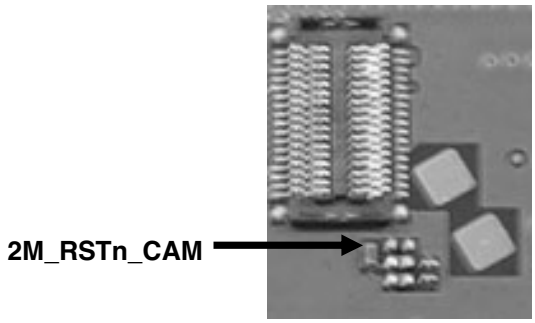


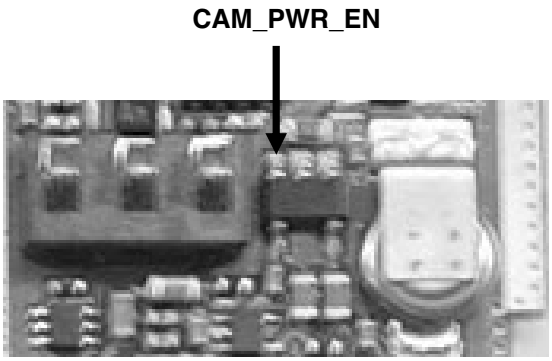
C240

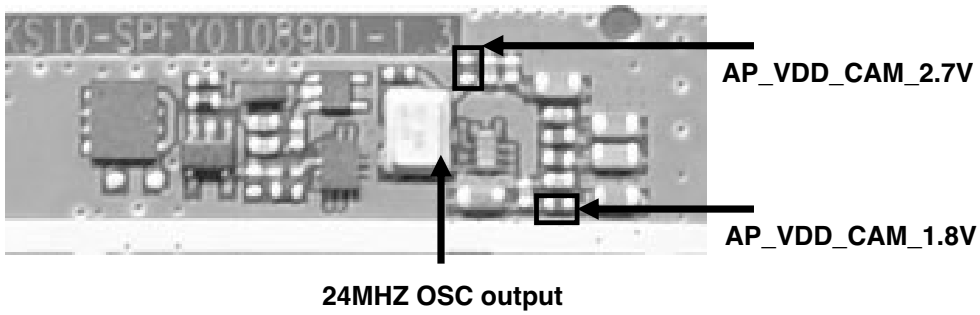
4.16 Camera trouble

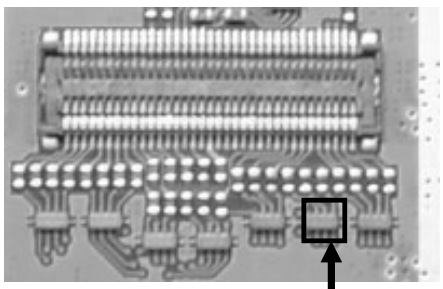
Camera control signals are generated by STN8810 and directly connected with STN8810.
KS10 has two cameras. The one is a 2 Mega Camera, the other is VGA camera.

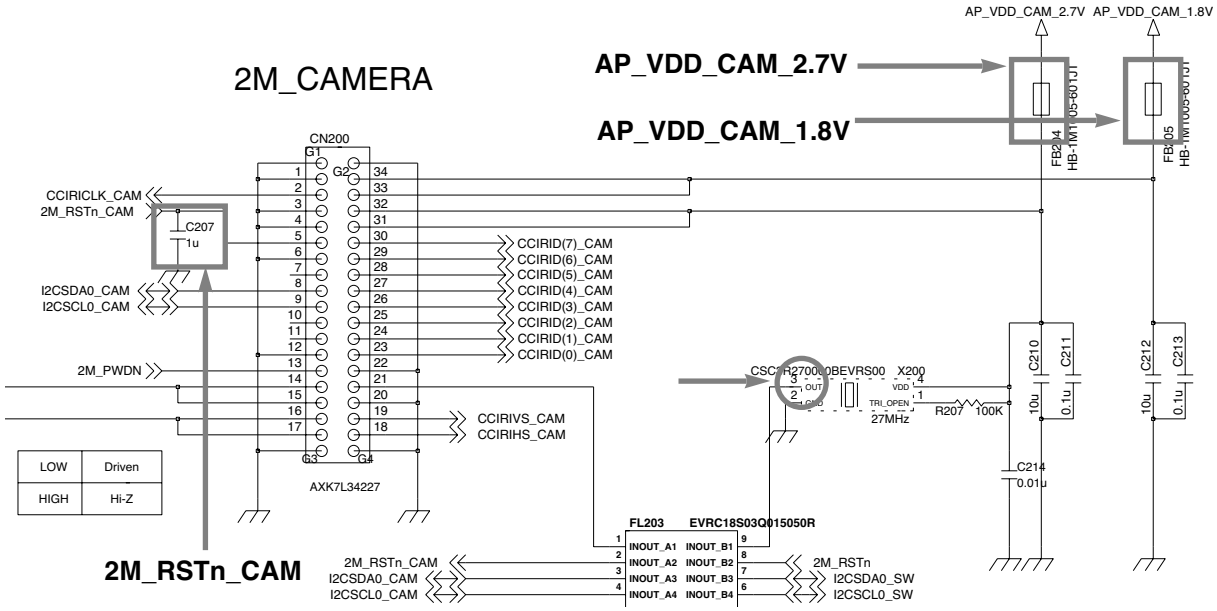


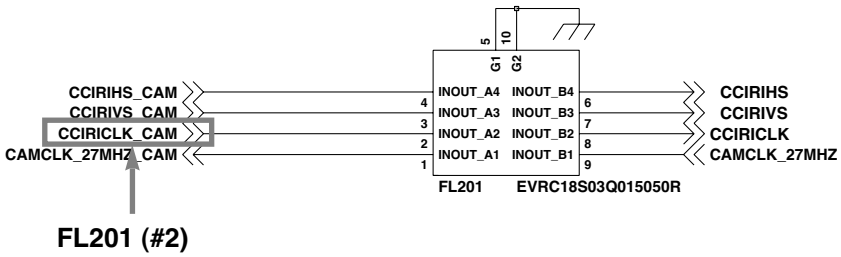


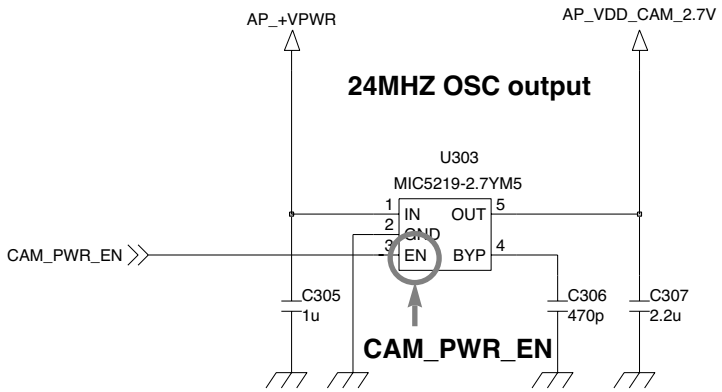


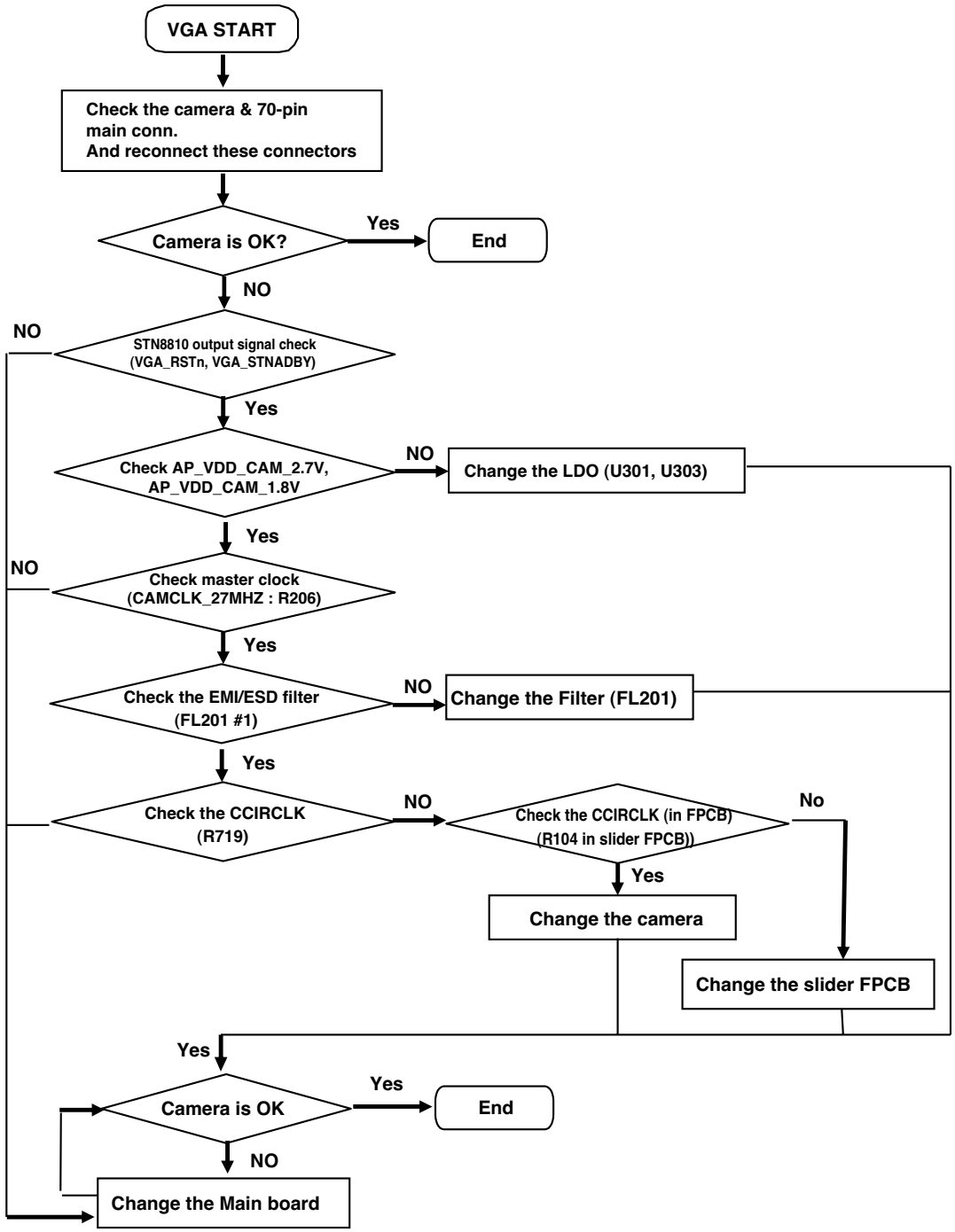


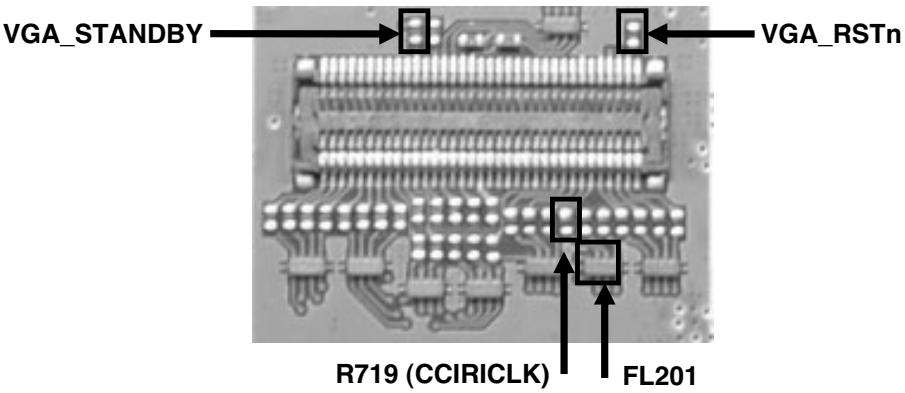


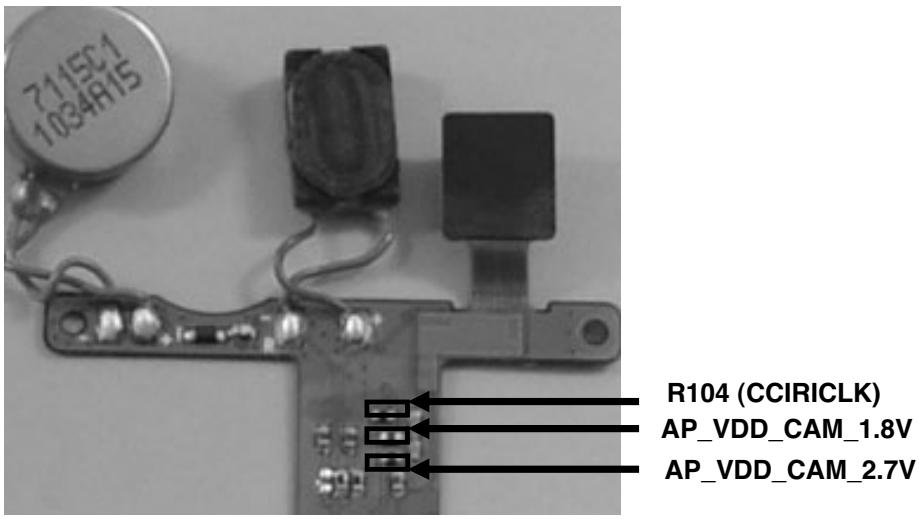


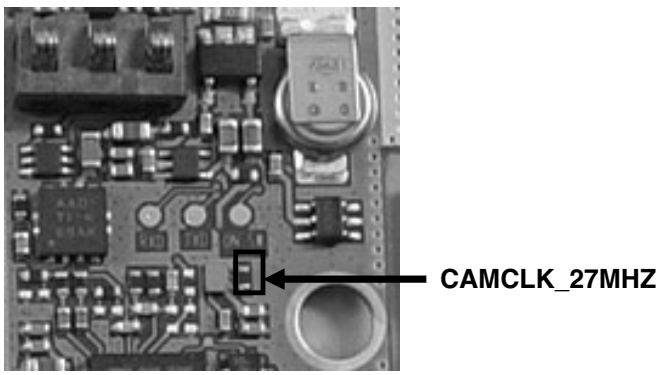


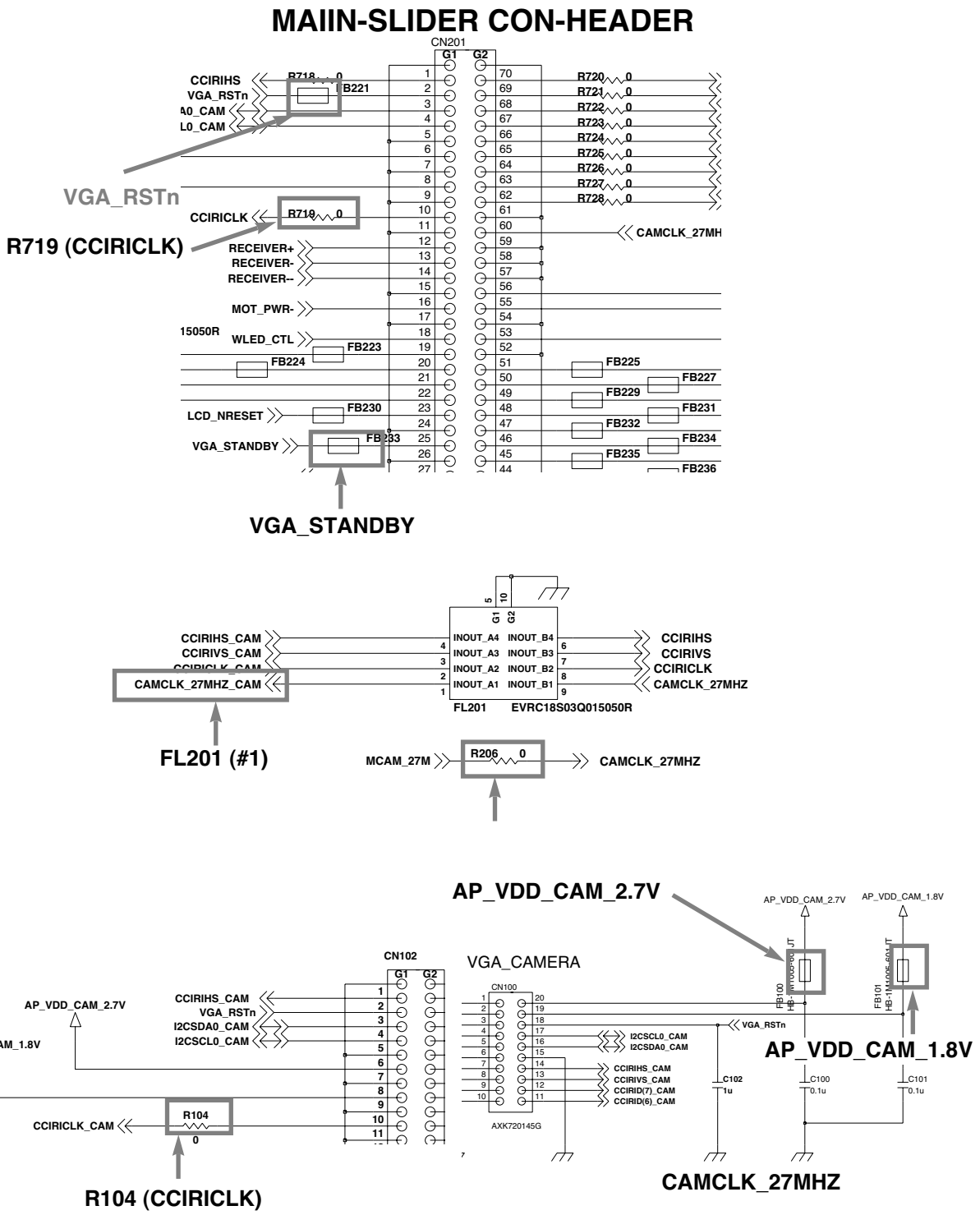








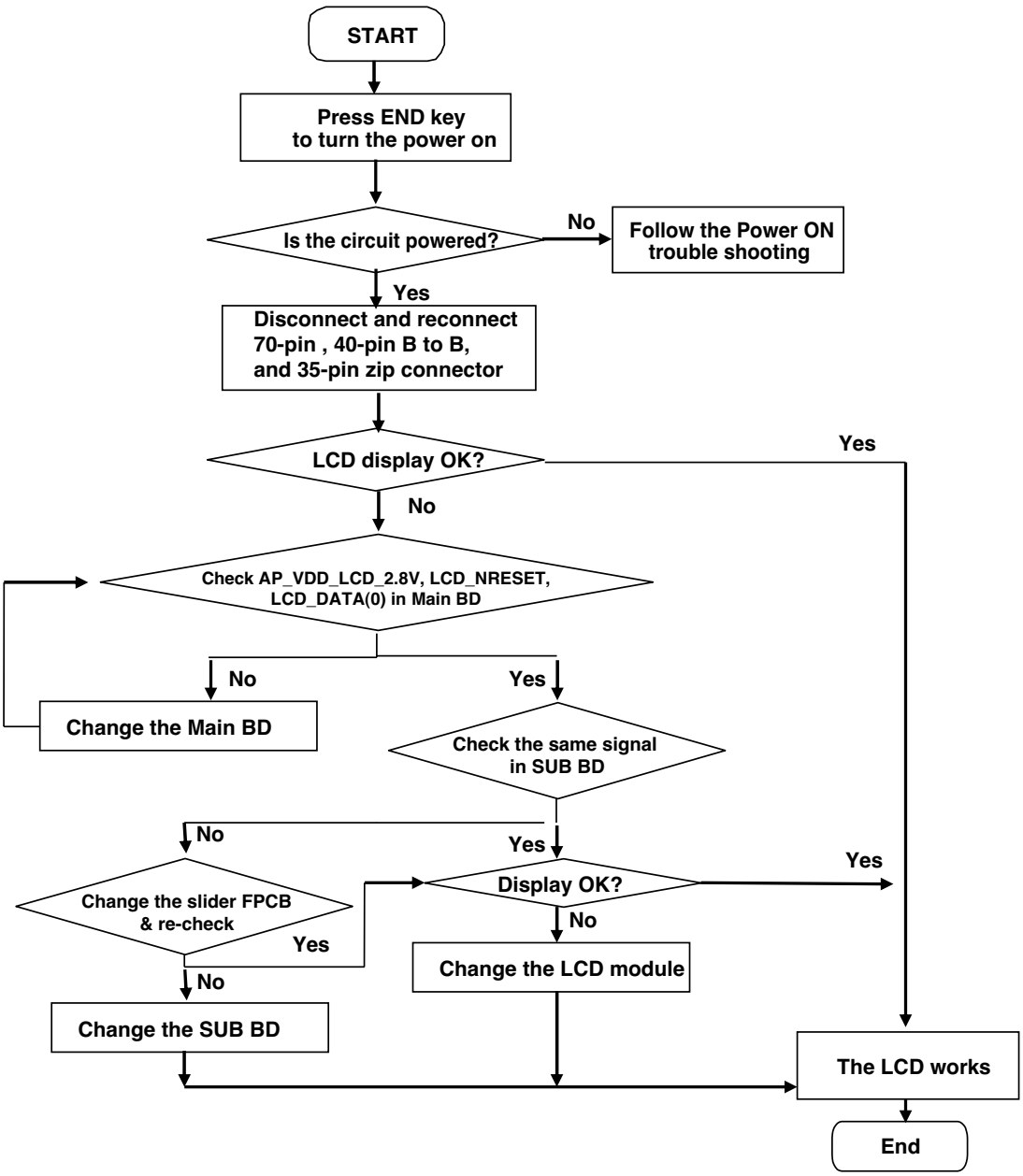




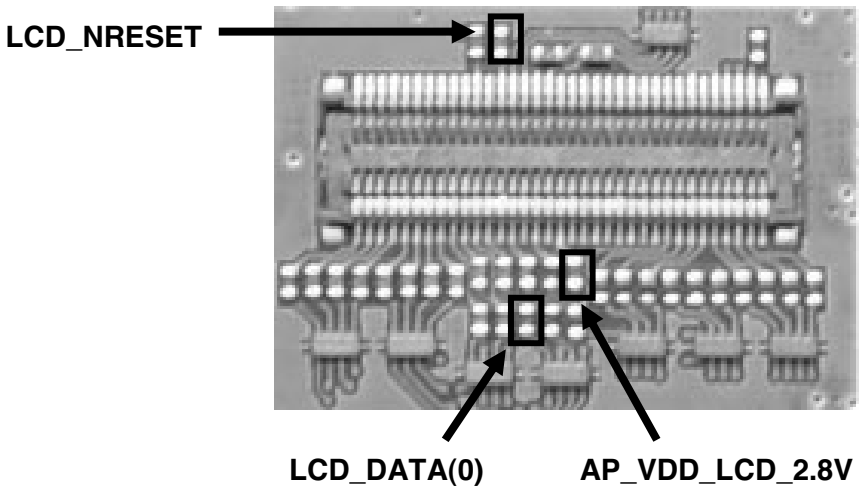
Schematic of VGA camera part

4.17 Main LCD trouble

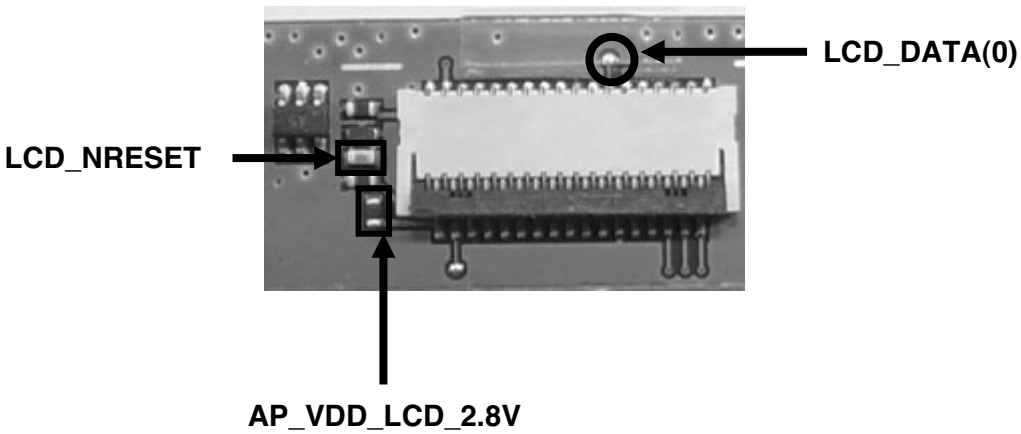
Main LCD control signals are generated by STN8810. Those signal's path are :
STN8810 -> 70-pin main connector(CN201 in main PCB) -> 70-pin connector (CN102 in slider FPCB) -> 40-pin connector (CN101 in slider FPCB) -> 40-pin connector (CN101 in SUB PCB) -> LCD zip connector (CN100 in SUB PCB) -> LCD Module

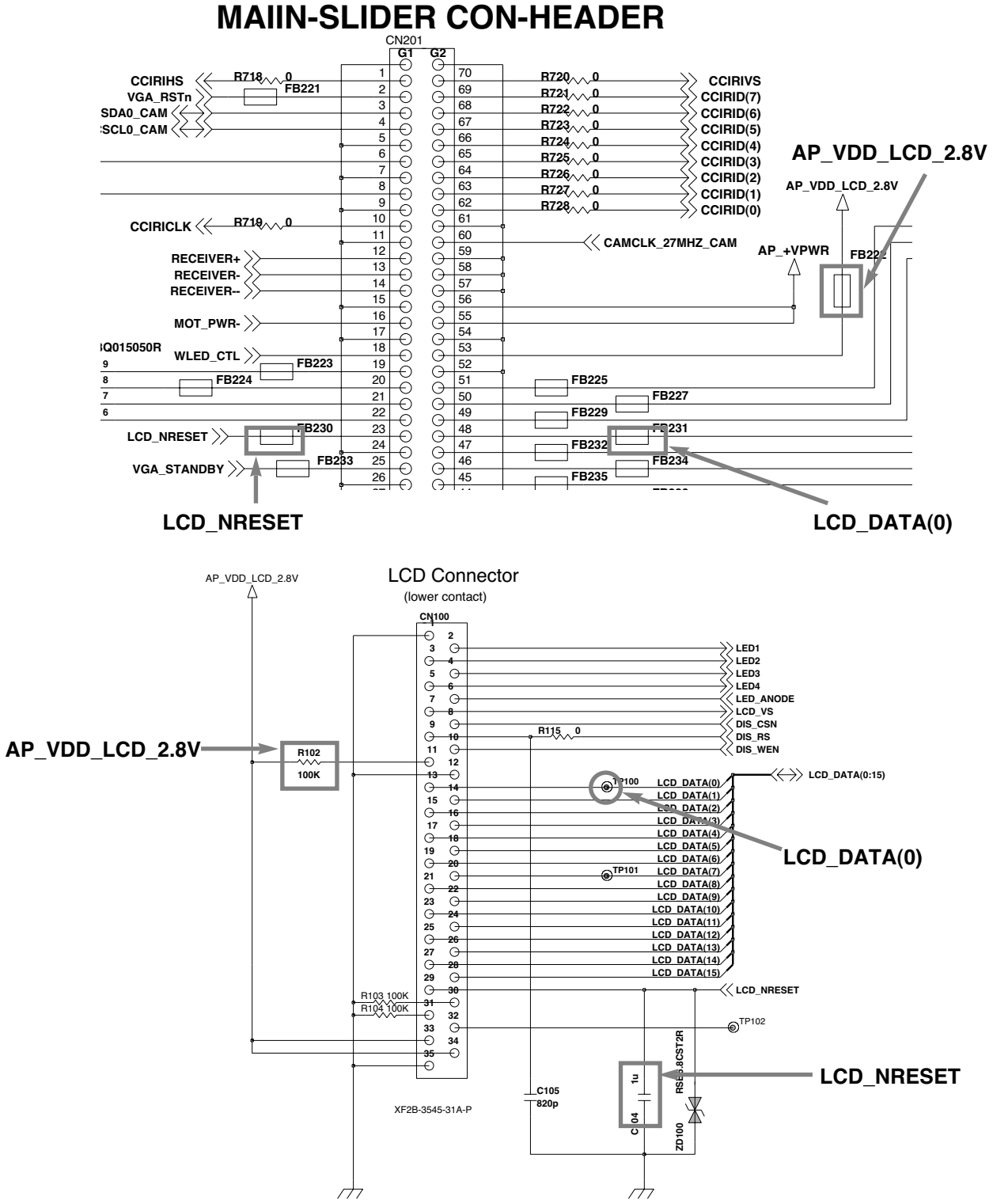


Main BD



SUB BD





Schematic of LCD part

4.18 Bluetooth trouble

Bluetooth control signals are generated by STN8810.
Those signal's path are : STN8810 → AP_VDD_IO_1.8V and AP_VDD_BT_2.7V is asserted → CLK32K is asserted → Bluetooth ON → BT_RESETN is High CLK_REQ_OUT_1 is High → REF_CLK_IN is asserted → transmit/receive data/control through UART → transmit/receive voice data through PCM I/F

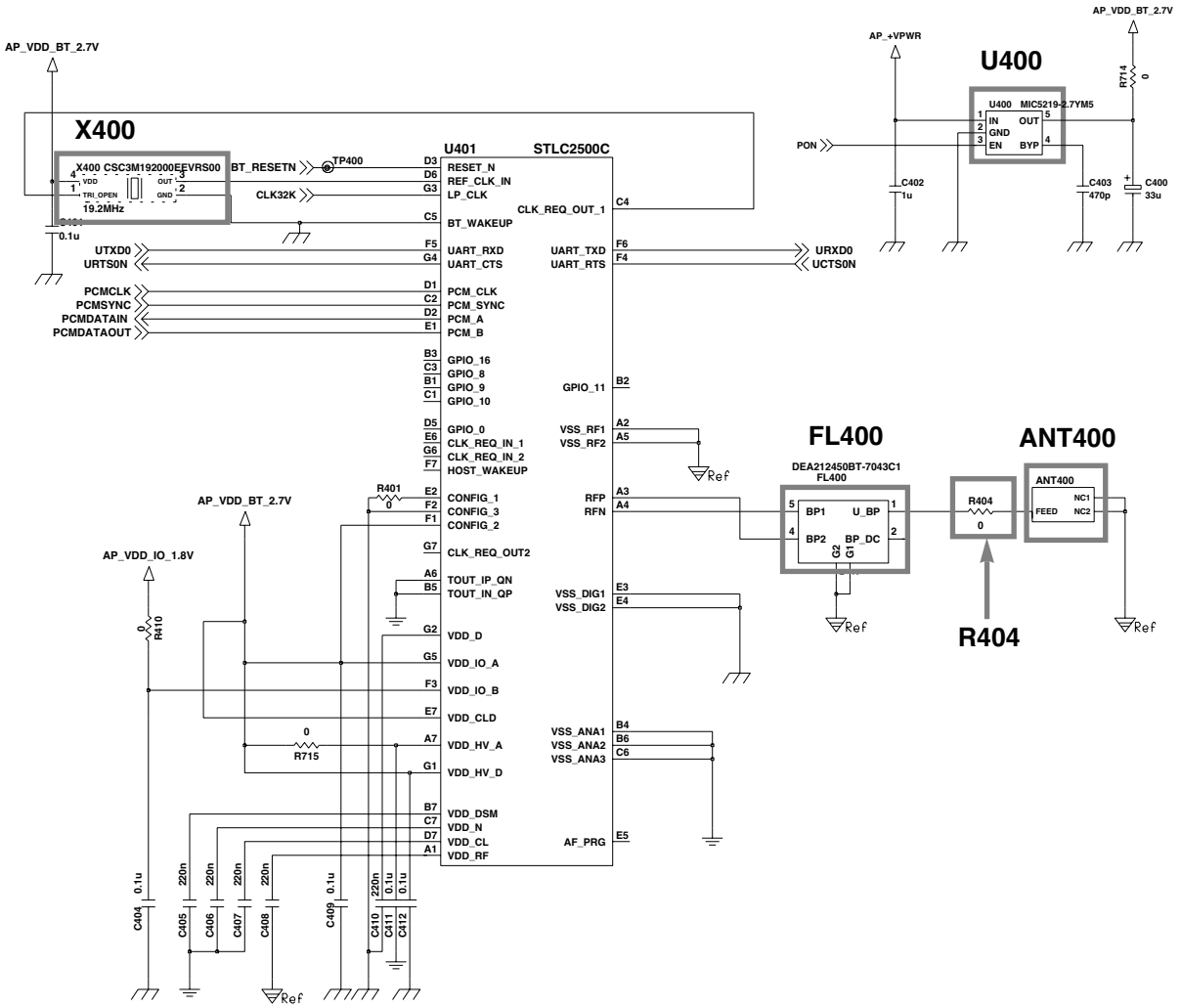


Figure. Schematic of Bluetooth Interface

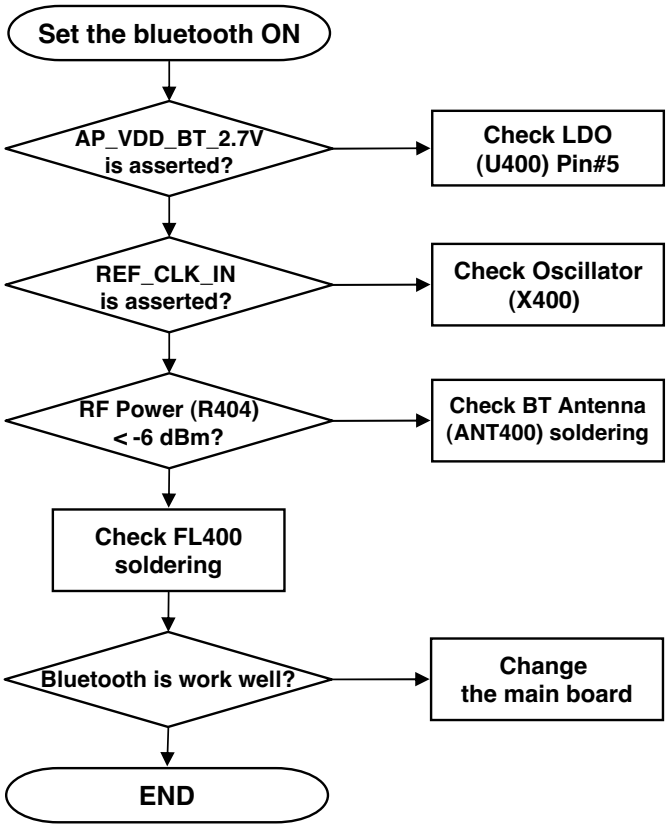
Bluetooth RF Test

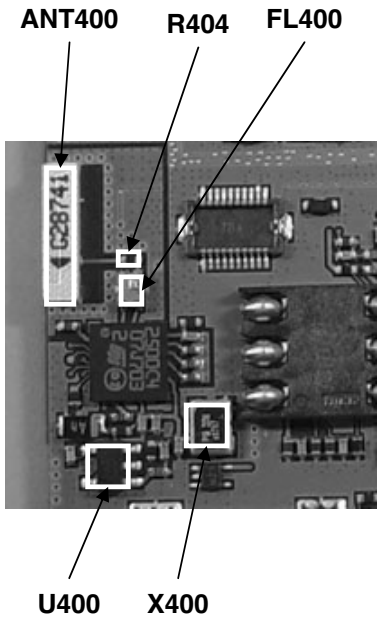
TC-3000A (Bluetooth Tester)

1. Set phone to bluetooth test-mode:

   Enter Test Mode(*#32*36907#) → Module Test Set → BT DUT → BT DUT ON
2. Connect phone to bluetooth tester
3. Set channel to 39
4. Measure output-power
5. Check TP1 : output-power > -6 dBm

4. TROUBLE SHOOTING





5. DOWNLOAD

5.1 Composition omposition

5.1.1 PC OS

- Windows 2000(SP4) & Windows XP(SP2)
- RAM : 256M
- USB : 1.1 or 2.0

5.1.2 D/L Tool

- TA-25G
- 3G USB DLC
- USB HUB : Support 1.1 with 2.0
  4 ~7 ports USB
  Using the external power (Adaptor)

5.1.3 Program

- LGDP2 program: V32

5.1.4 Solution for KS10

- AP : Nomadik application processors
- MP : Qualcomm application processors

<TA-25G>

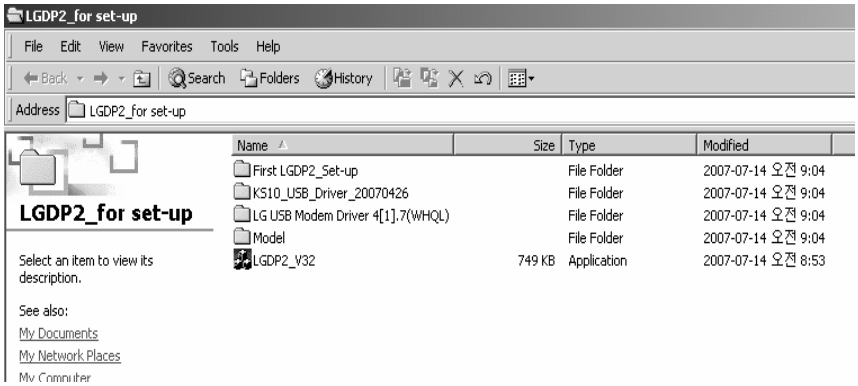
<3G USB DLC>

<USB Hub>

5.2 LGDP2 Program install LGDP2 Program install

5.2.1 The "LGDP2_for set-up zip" file is downloaded on CSMG site.

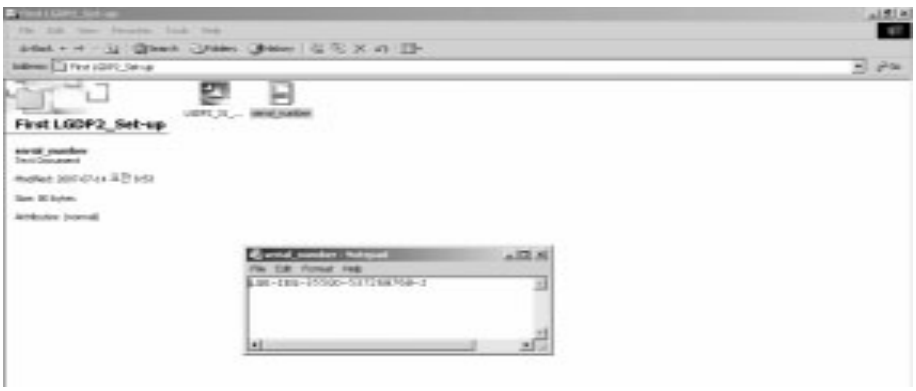
5.2.2 The "LGDP2_for set-up zip" file is unzip as same name in PC.



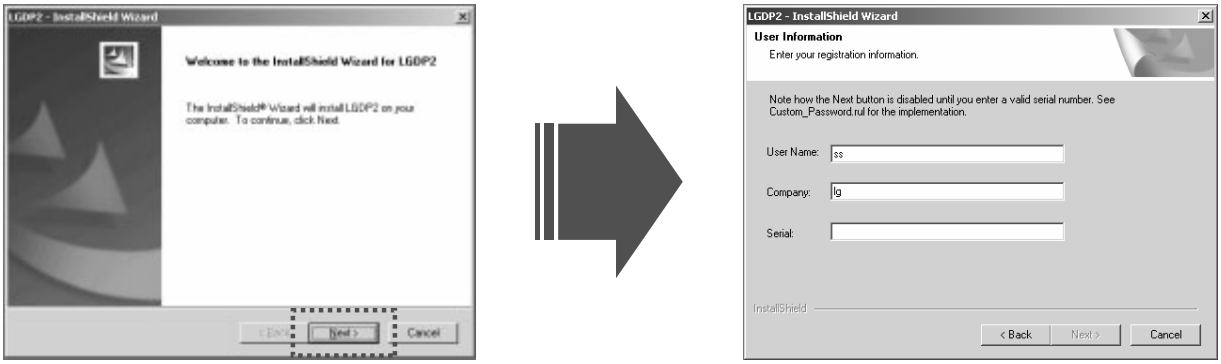
5.2.3 Select "First LGDP2_set-up" folder.

5.2.4 Open "serial_number" file.

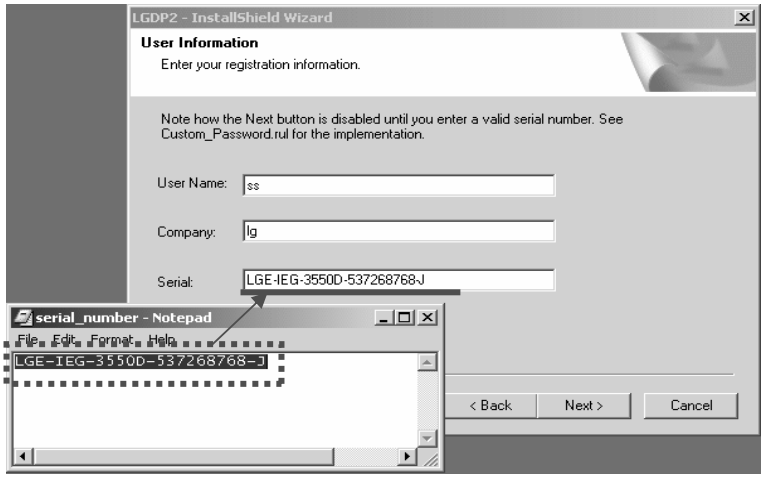
5.2.5 Double click "LGDP2_31_INCLUDE_LGDP1_Setup" file.



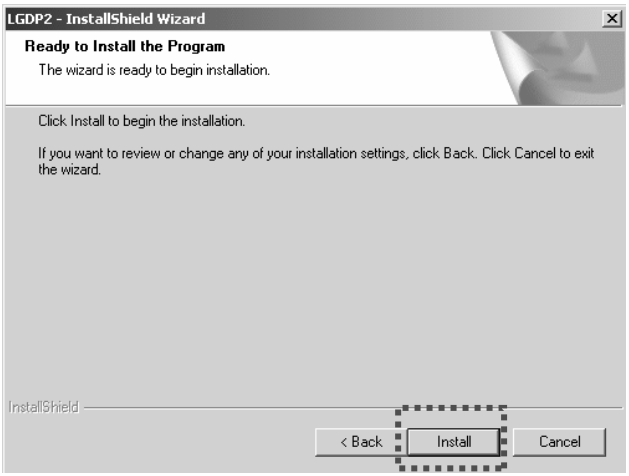
5.2.6 Click “Next” button.



5.2.7 Writing Serial number and then click “Next” button.



5.2.8 Click “Install” button.

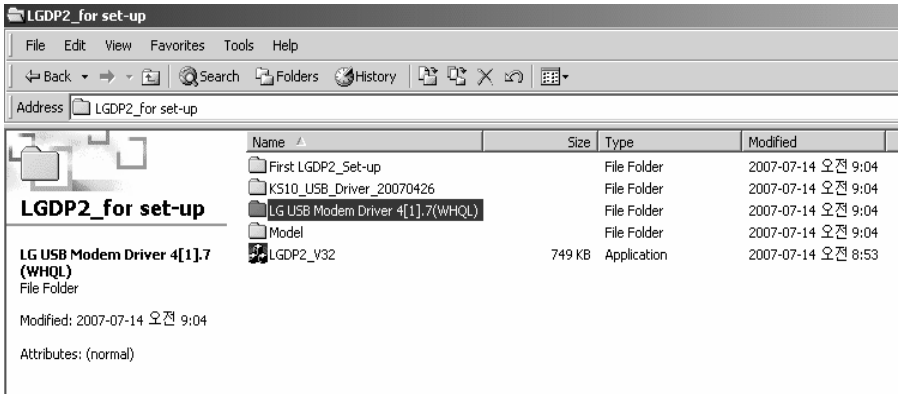


5.2.9 Click “Finish” button.

5.3 USB Driver setup USB Driver setup

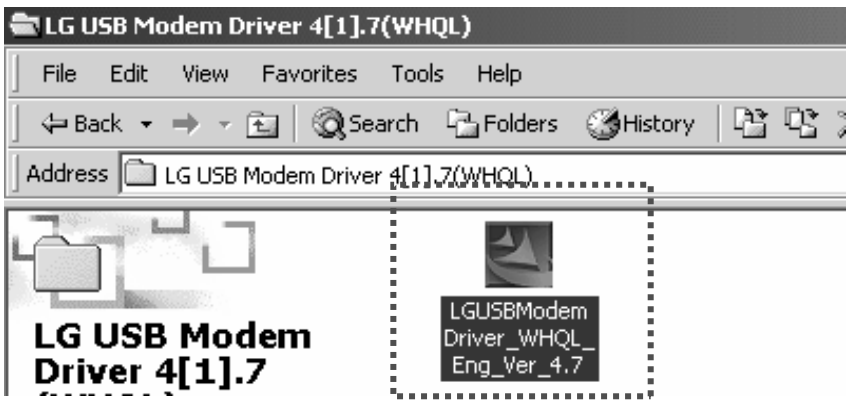
5.3.1 Setup the USB driver for MP.

5.3.1.1 Select "LG USB Modem Driver 4"1".7(WHQL)" in "LGDP2_for set-up" folder.



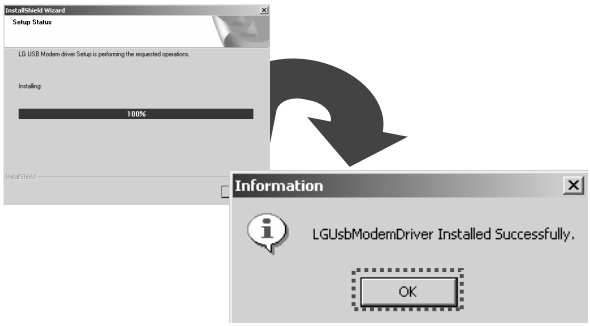
5.3.1.2 Double click

"LGUSBModemDriver_WHQL_Eng_Ver_4.7"



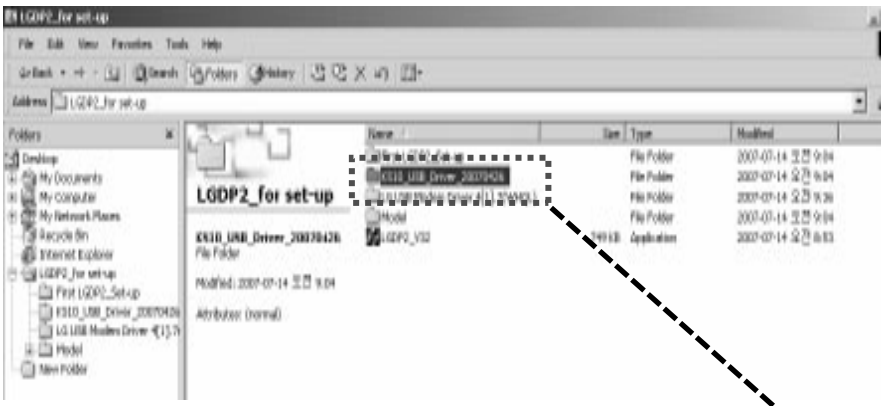
5.3.1.3 Click “Next” button.

5.3.1.4 Click “OK” button.



5.3.2 Setup the KS10 USB driver for AP.

5.3.2.1 Copy "KS10_USB_20070426" folder in "LGDP2_for set-up" folder.



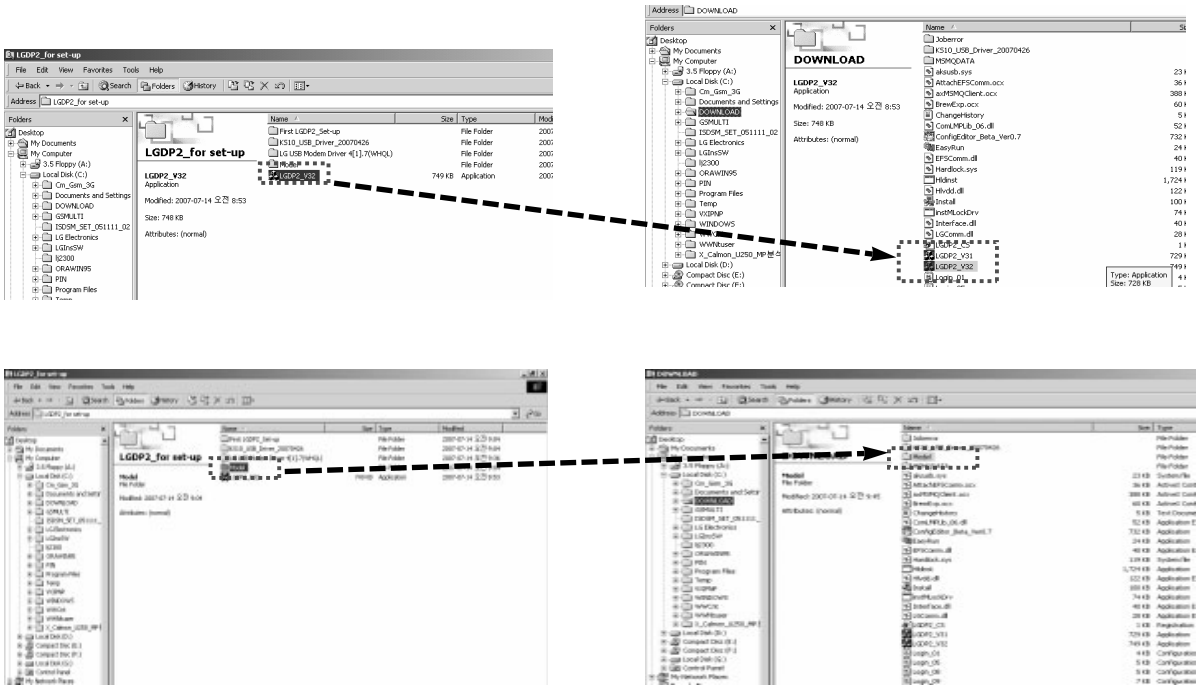
5.3.2.2 And then paste this folder on "DOWNLOAD" folder in C driver as below picture.

5.4 KS10 LGDP2 run file & DLL file setup

5.4.1 Setup the KS10 run file & DLL file.

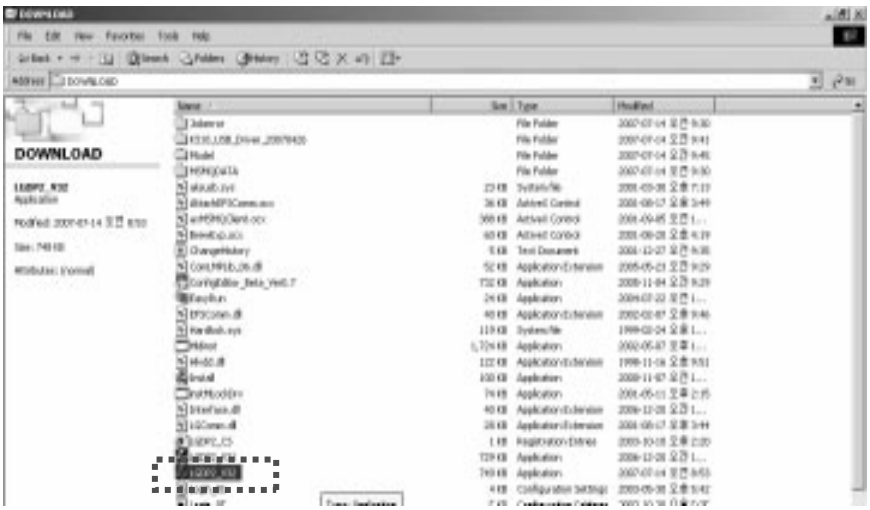
5.4.1.1 Copy "LGDP2_V32" file & "Model" folder in "LGDP2_for set-up" folder.

5.4.1.2 And then paste these file & folder on "DOWNLOAD" folder in C driver.

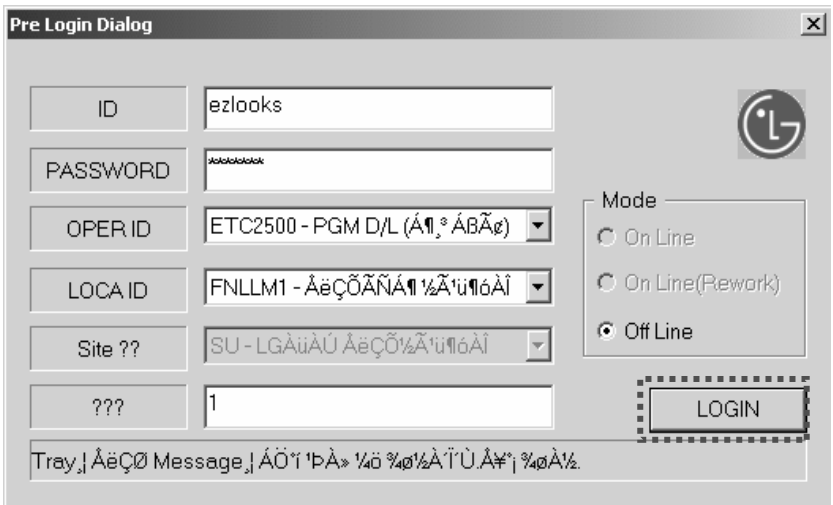


5.5 Execute LGDP2 program

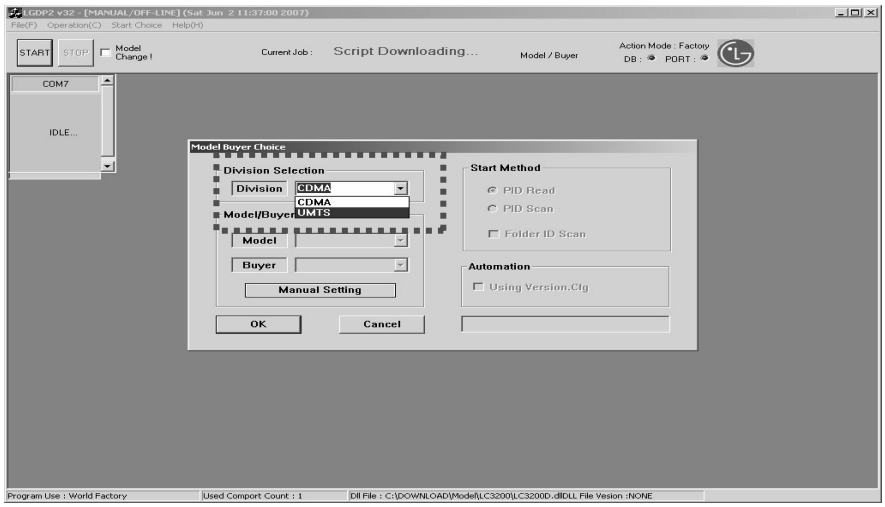
5.5.1 Double click “LGDP2_V32” file in "DOWNLOAD" folder.



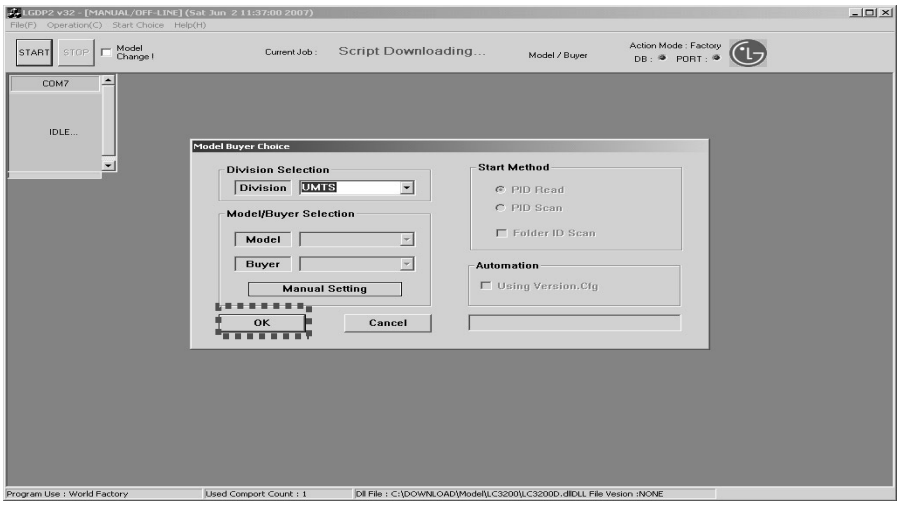
5.5.2 Click “LOGIN” button.



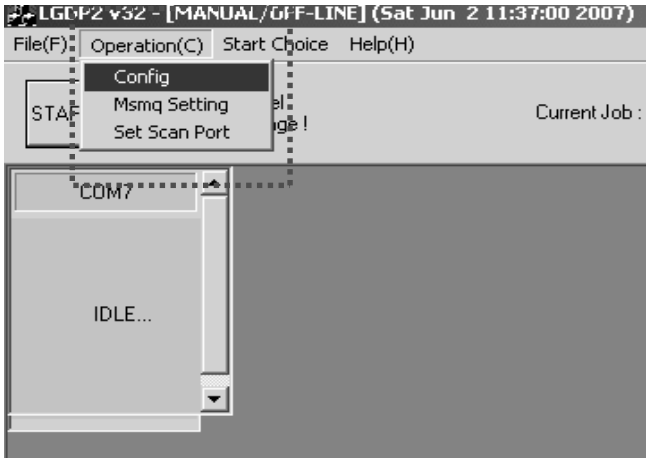
5.5.3 You choose the "UMTS" in "Division" Box



5.5.4 Click “OK” button.

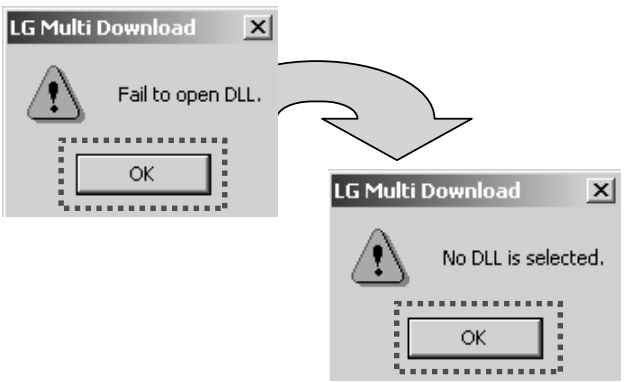


5.5.5 Click “Operation(C)” on menu and then select “Config”.

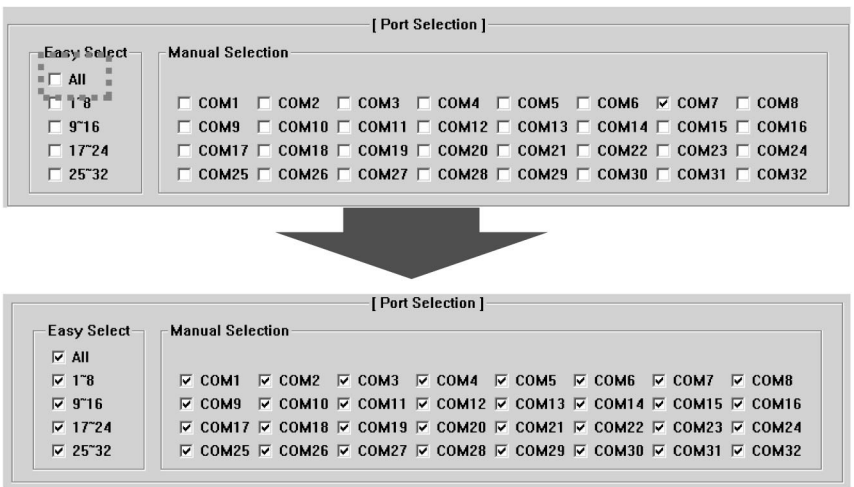


5.5.6 Click “OK” button.

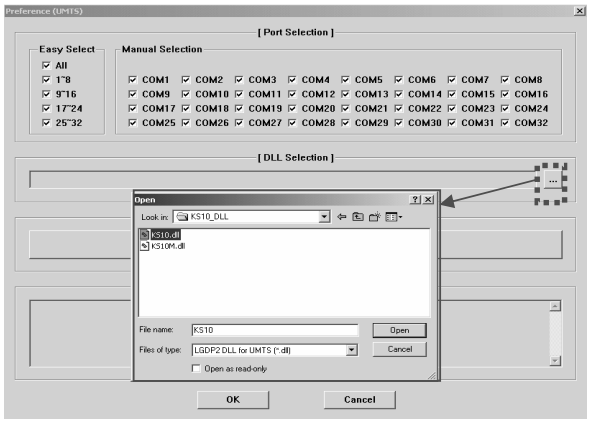
*** Ignore these below message**



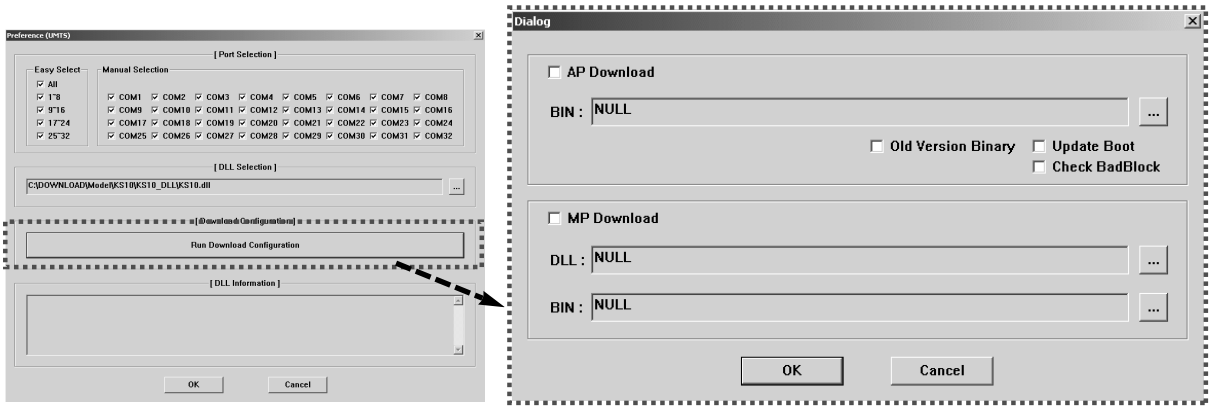
5.5.7 Click “All” icon.



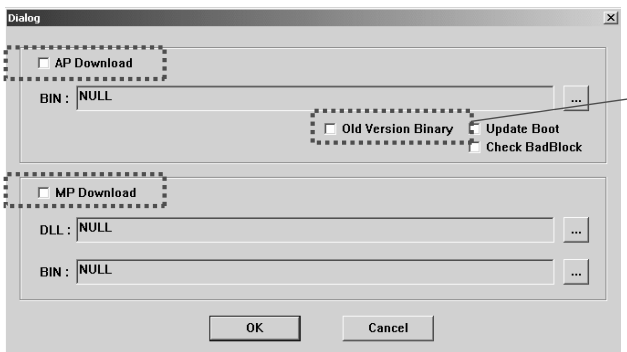
5.5.8 Choose the "KS10.DLL" file on "Model" folder in "Download" folder.



5.5.9 Click “Run Download Configuration” button.

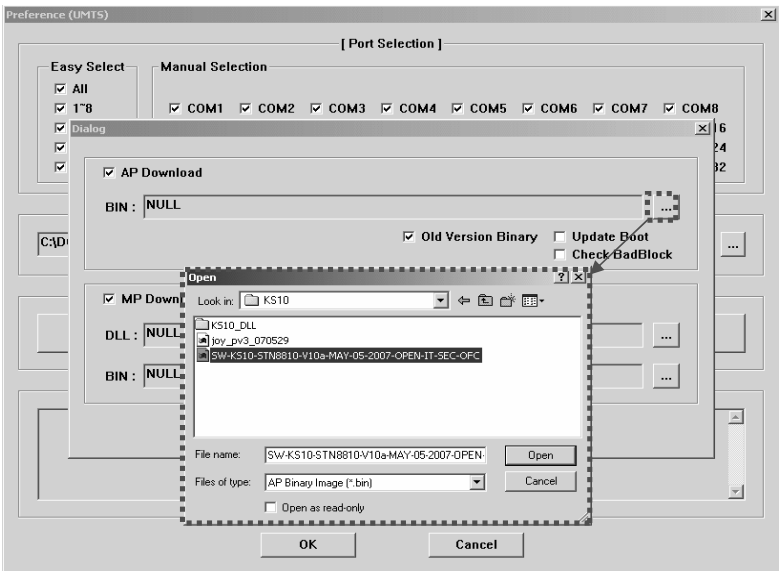


5.5.10 Select AP download & Old Version Binary & MP Download icons.

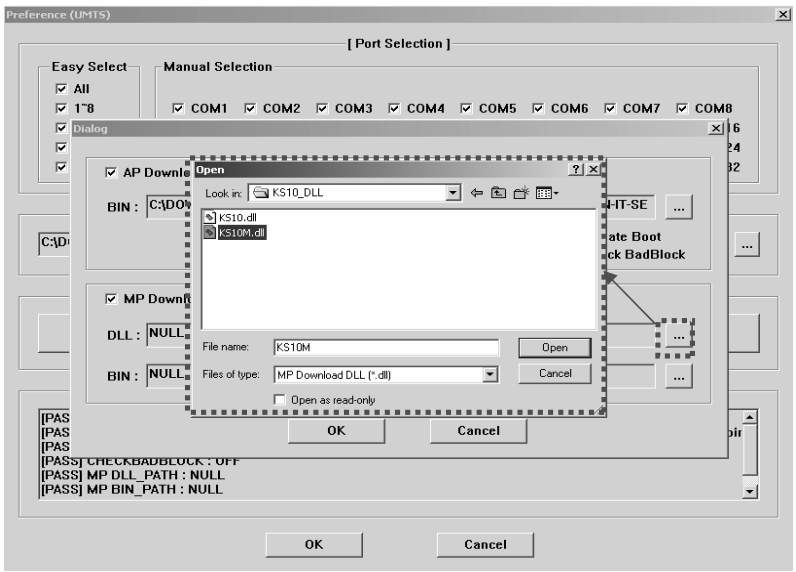


Explain Old Version Binary icon
It is control "Binary" type.
We use old type Binary in now so, you should be check this category.
But in the future, We will release the new Binary.
So, If the new Binary is released, you don't check "Old Version Binary" category.

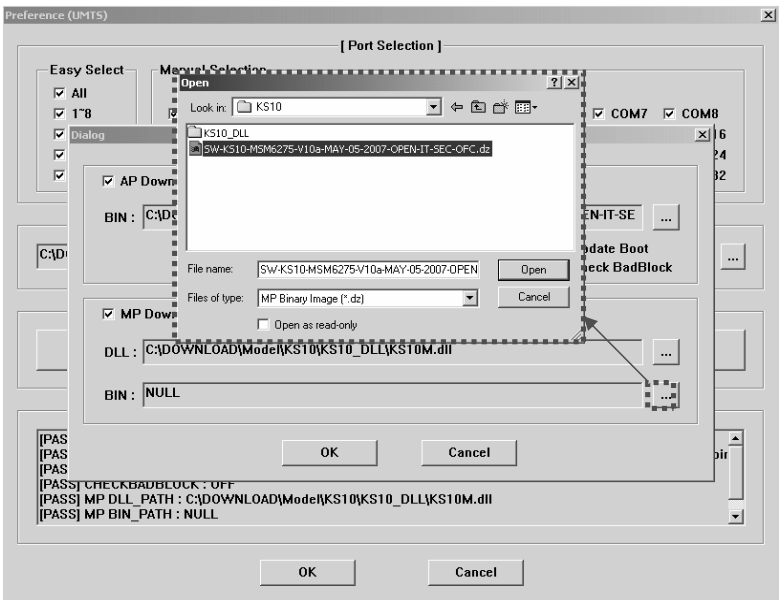
5.5.11 Insert “SW-KS10-STN8810-V10a-MAY-05-2007 -OPEN-IT-SEC-OFC” in "KS10" folder on "Model" folder after click "..." icon on "BIN" Box right side.



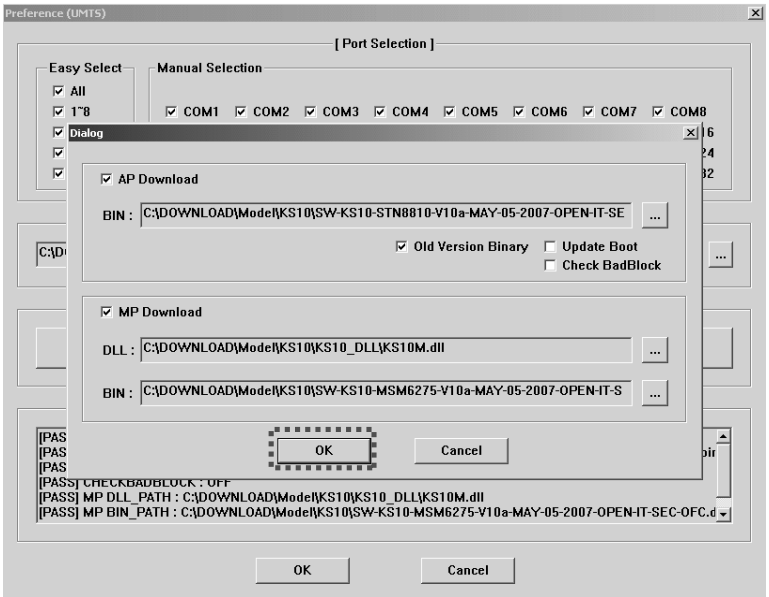
5.5.12 Insert “KS10M.Dll” in "KS10_DLL" folder on "Model" folder after click "..." icon on "DLL" Box right side.



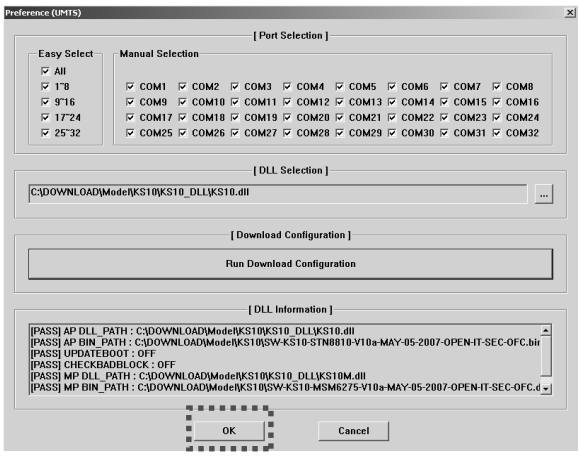
5.5.13 Insert “SW-KS10-MSM6275-V10a-MAY-05-2007 -OPEN-IT-SEC-OFC.dz” in "KS10" folder on "Model" folder after click "..." icon on "BIN" Box right side.



5.5.14 Click “OK” button.

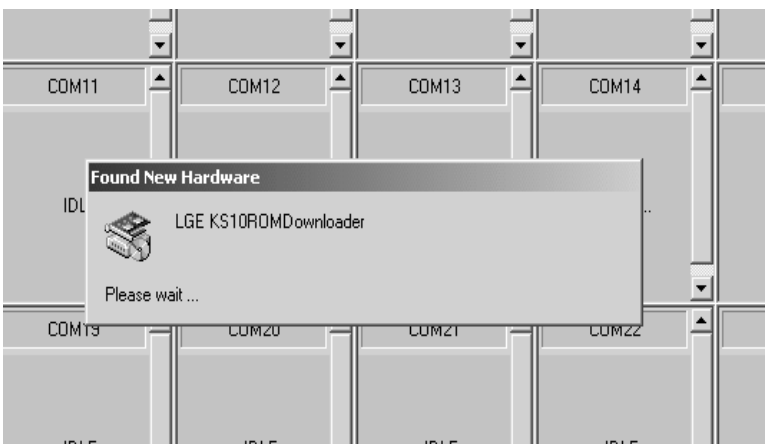


5.5.15 Click “OK” button.



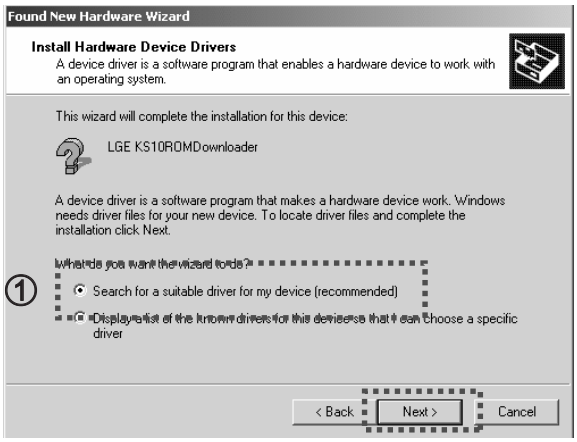
5.5.16 Click “START” button and then connect phone.

5.5.17 PC create New hardware driver.

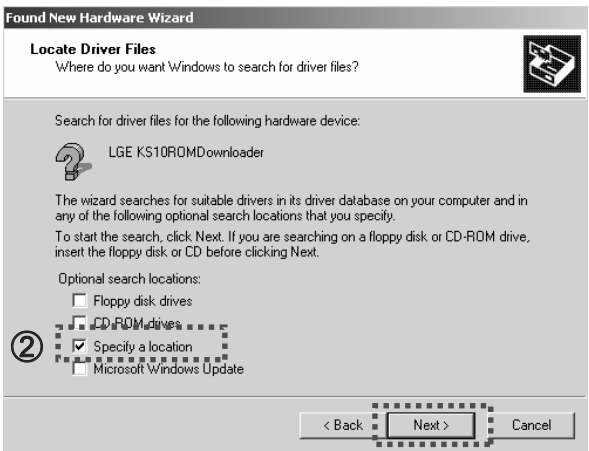


5.5.18 Click “Next” button.

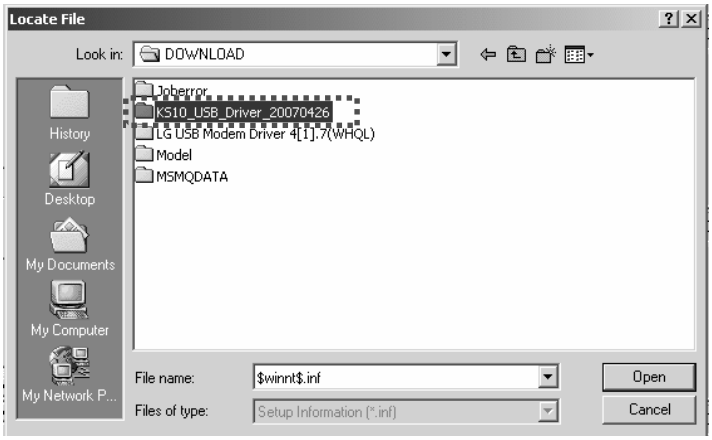
5.5.19 Select “①” icon and then click “Next” button.



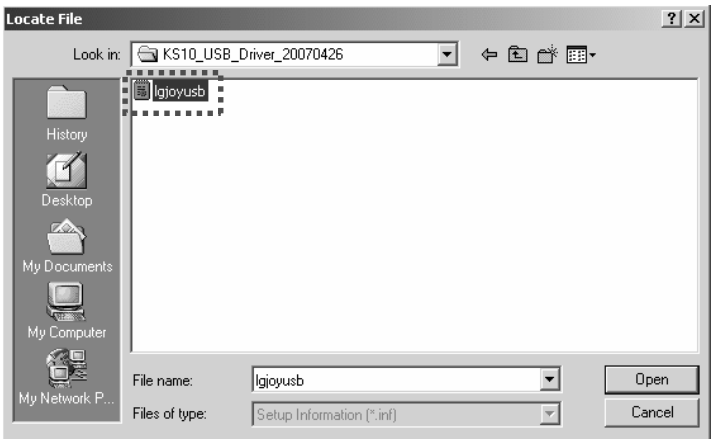
5.5.20 Select “②” icon and then click “Next” button.



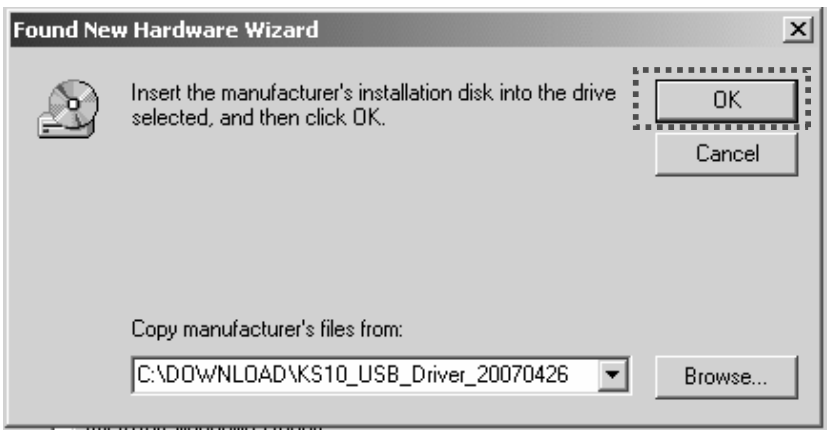
5.5.21 Select "KS10_USB_Driver_20070426" folder in "DOWNLOAD" folder.



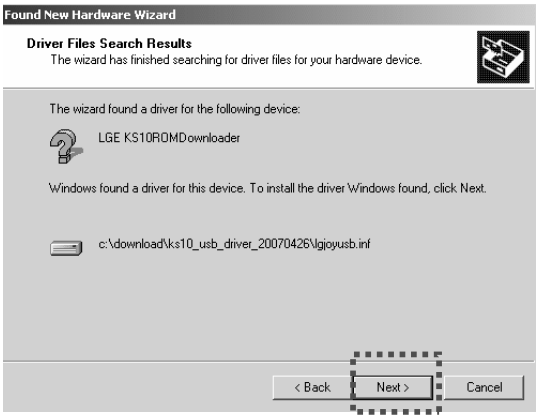
5.5.22 Click the "lgjoyusb" file.



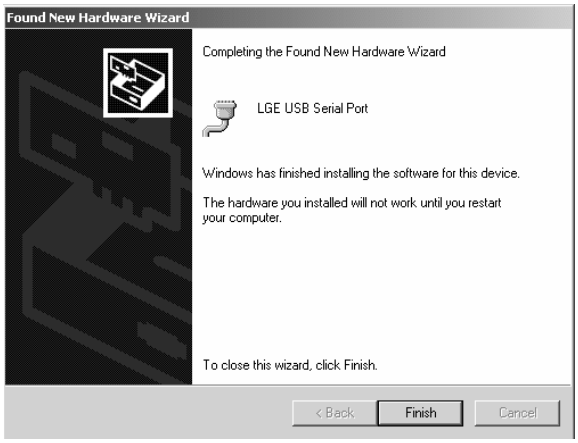
5.5.23 Click “OK” button.



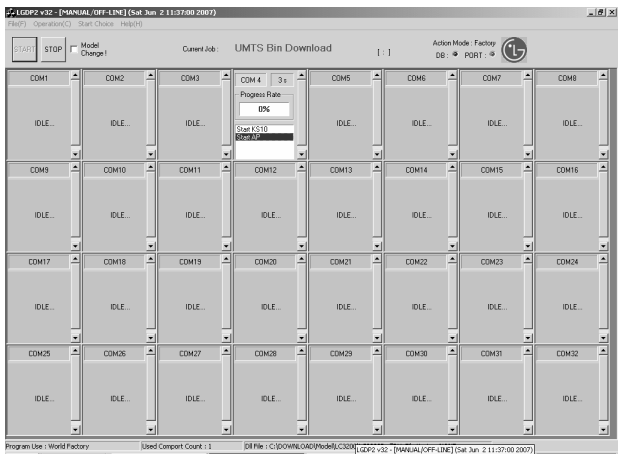
5.5.24 Click “OK” button.



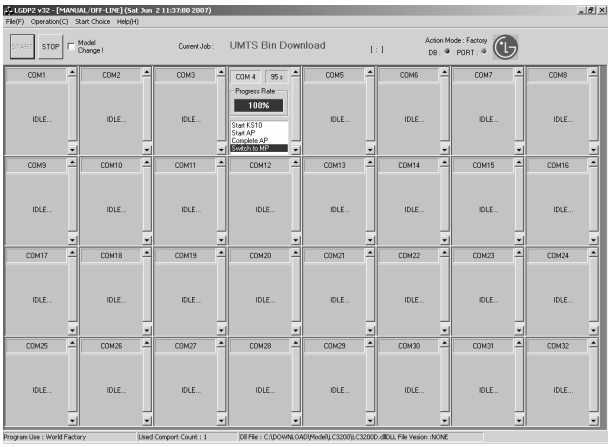
5.5.25 Click “Finish” button.



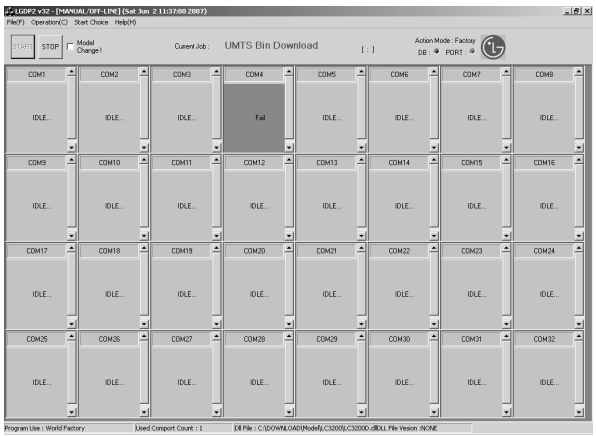
5.5.26 the LGDP2 program is running automatically.



5.5.27 Remember a first com ports No..

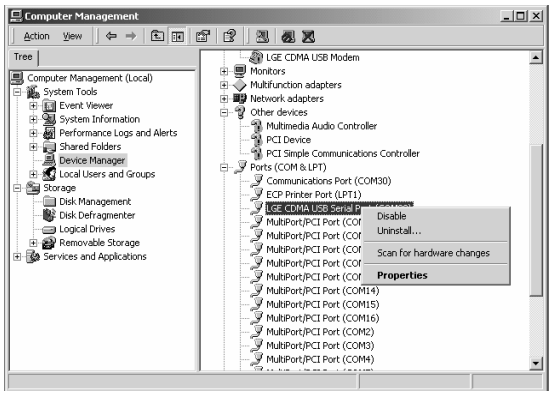


5.5.28 It is displayed "Fail" message after completing AP downloading. Don't disconnection phone.

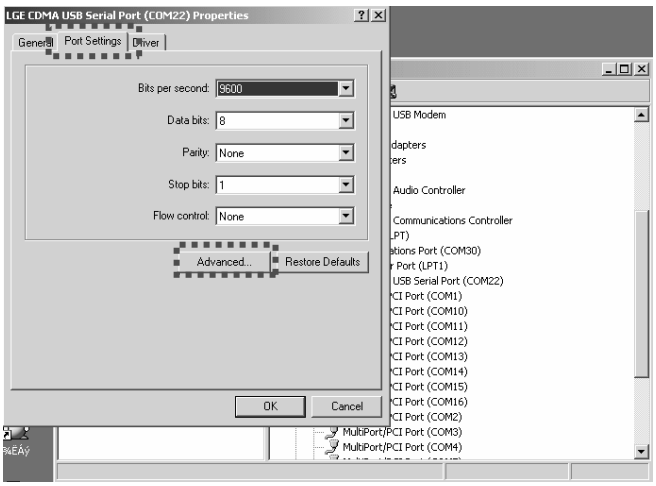


5.5.29 Click mouse right button on "My computer". Then select "Manage".

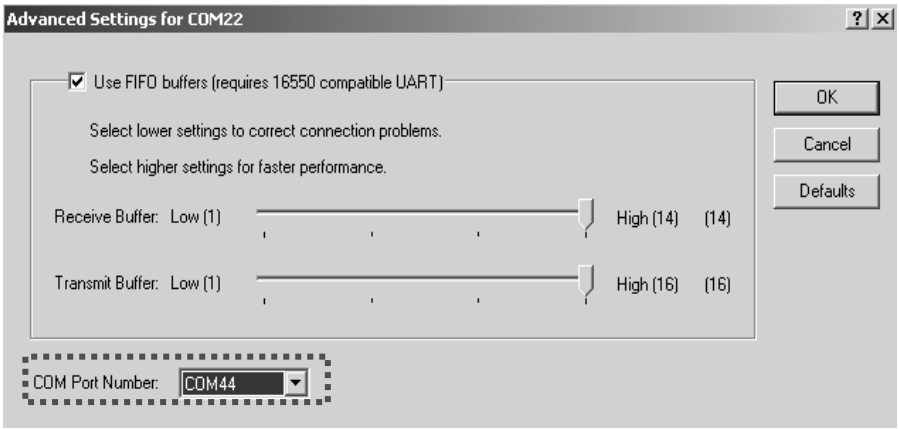
5.5.30 Follow up as below step. Device Manager → LGE CDMA USB Serial port → click mouse right button → select “properties”



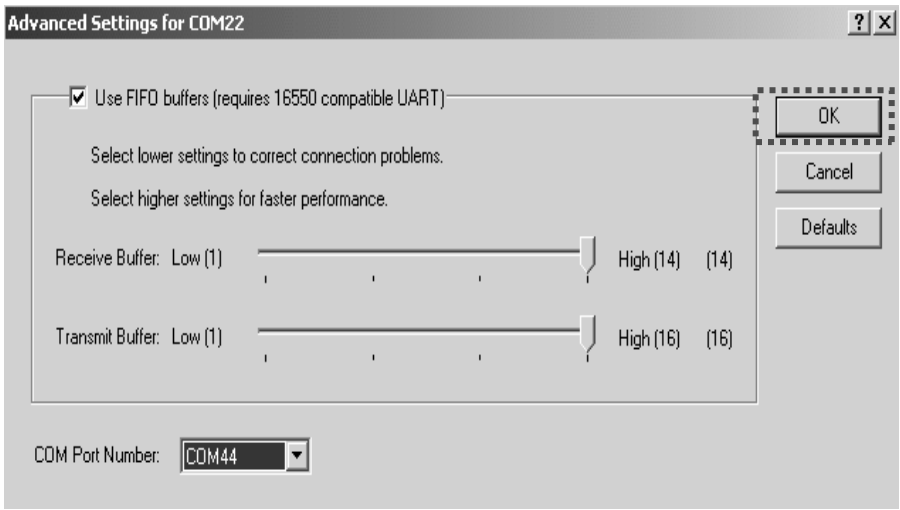
5.5.31 Select “Port settings” icon. Then click “Advanced” button.



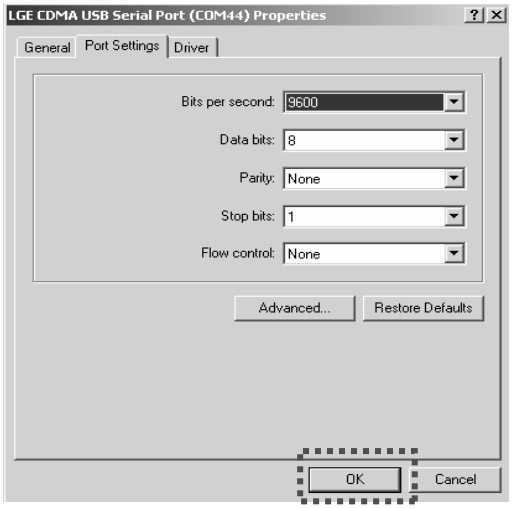
5.5.32 You should select com port No. which first com No. plus 40 is for MP.
ex) First com port : com 4 port Select com 44 (= 4+ 40) port



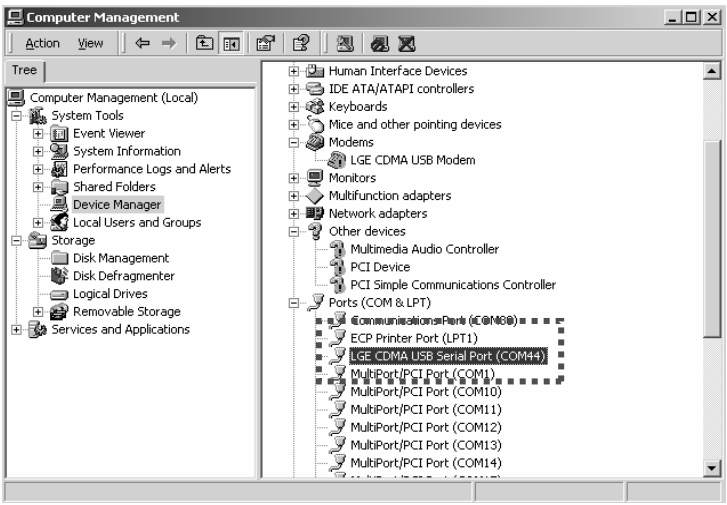
5.5.33 Click "OK" button.



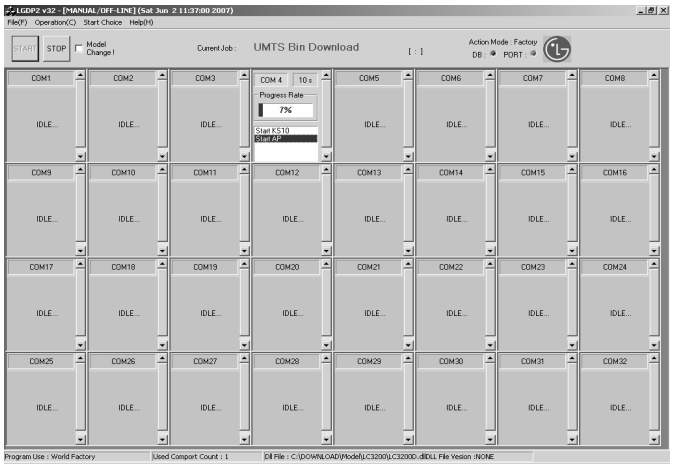
5.5.34 Click “OK” button.



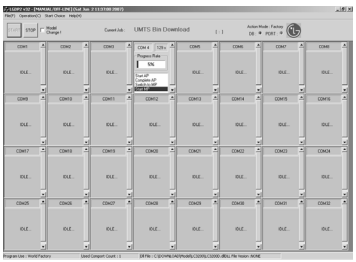
5.5.35 Checking com port number.

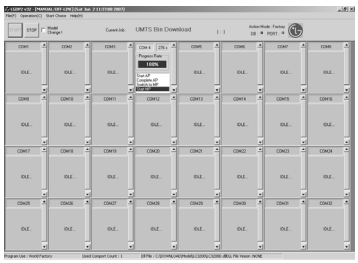


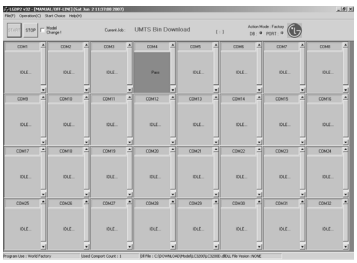
5.5.36 Disconnect and reconnect the phone.
And then the program is running automatically.



5.5.37 Running the LGDP2 program.







✳ If you want to download the other phone, you just do from 5-17 to 5-36 category on this Guide.

6. BLOCK DIAGRAM

6.1 GSM & WCDMA RF Block

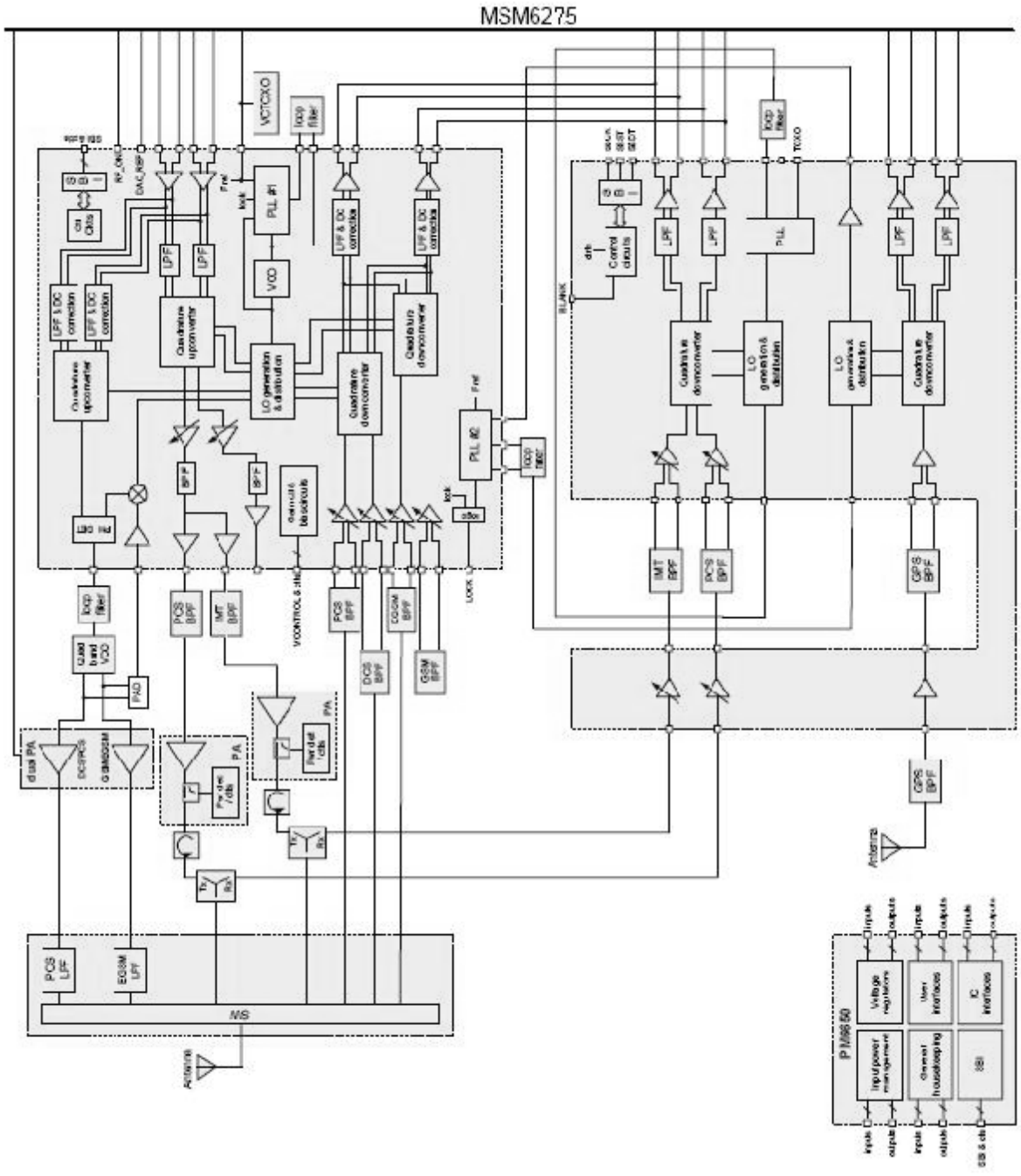
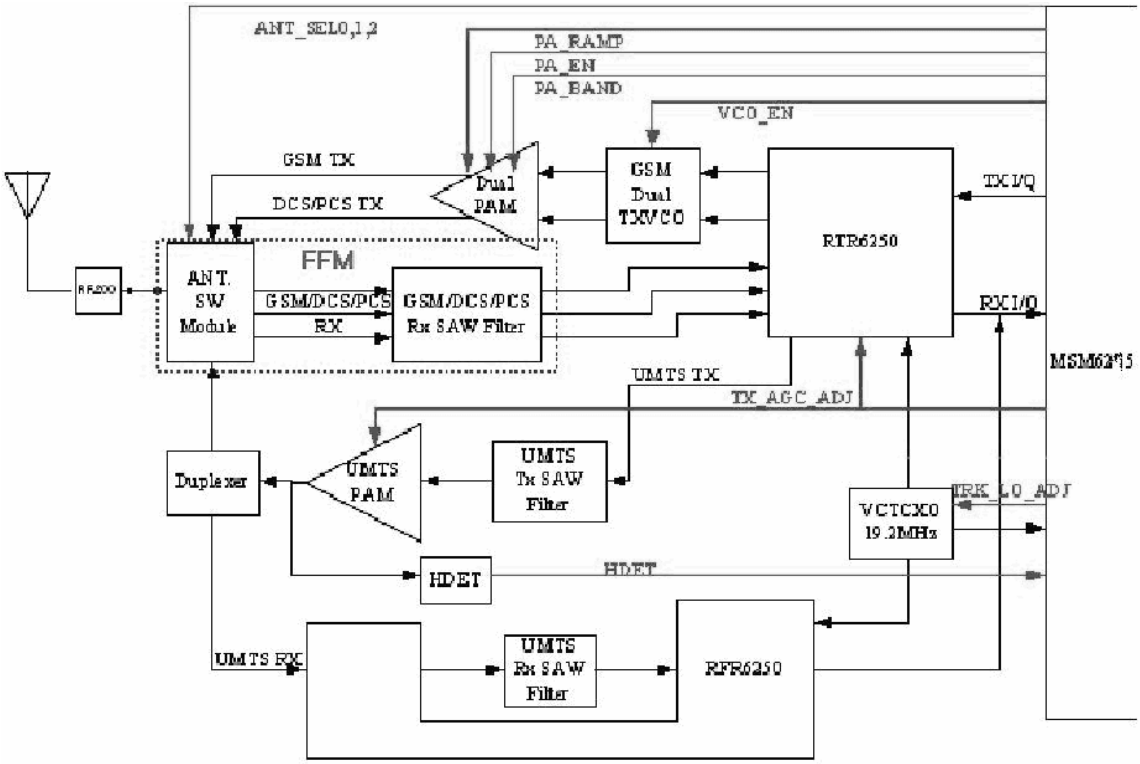


Fig 2.1-1.UMTS-2100 + EGSM-900/DCS-1800/PCS-1900 RF Functional Block Diagram

Block	Ref. Name	Part Name	Function	Comment
Common	FL500	ESHS-L090UB	Front End Module	ASM+Rx Saw
	SW500	KMS512	Test Connector	Calibration, etc
	X500	TG-5010LH_19_2M	VCTCXO	19.2MHz
Bluetooth	U401	STLC2500C	BT RF Transceiver	BT TRX
	FL400	DEA212450BT-7043C1	BT SAW Filter	BT TRX
	ANT400	MG280BTPARTRON	Antenna	BT Antenna
WCDMA	U506	ACMD-7601	Duplexer	TRX
	FL501	B7827	RX SAW Filter	RX
	U508	RFR6250E	RF Receiver IC	RX
	U503	EFCH1950TDC1	TX SAW Filter	TX
	U505	AWT6277R	TX PAM	TX
	U500	RTR6250D	RF Transceiver IC	TRX
	U504	ADL5500	Power Detect	TX
	U507	CP0402A1880EL	Coupler	TX
GSM	U501	TQM7M5003	TX Dual PAM	TX
	U502	MQW5V0C869M	VCO	Dual TX VCO

Table 2.1-1. RF Block Component

6.2 Interface Diagram



KS10 Interface Diagram

Main RF signal (black)

GSM TX : GSM Tx RF signal

GSM RX : GSM Rx RF signal

DCS TX : DCS Tx RF signal

DCS RX : DCS Rx RF signal

PCS TX : PCS Tx RF signal

PCS RX : PCS Rx RF signal

UMTS TX : UMTS Tx RF signal

UMTS RX : UMTS Rx RF signal

TX_I/Q : I/Q for Tx of RF

RX_I/Q : I/Q for Rx of RF

Control signal(red)

ANT_SEL 0,1,2 : Ant Switch Module Mode Selection
(WCDMA, GSM Tx/Rx, DCS Tx/Rx, PCS Tx/Rx)

GSM PA_CTL Signal
GSM_PA_BAND : DCS or PCS /GSM Mode Selection
GSM_PA_EN : Power Amp Gain Control Enable
GSM_PA_RAMP : Power Amp Gain Control

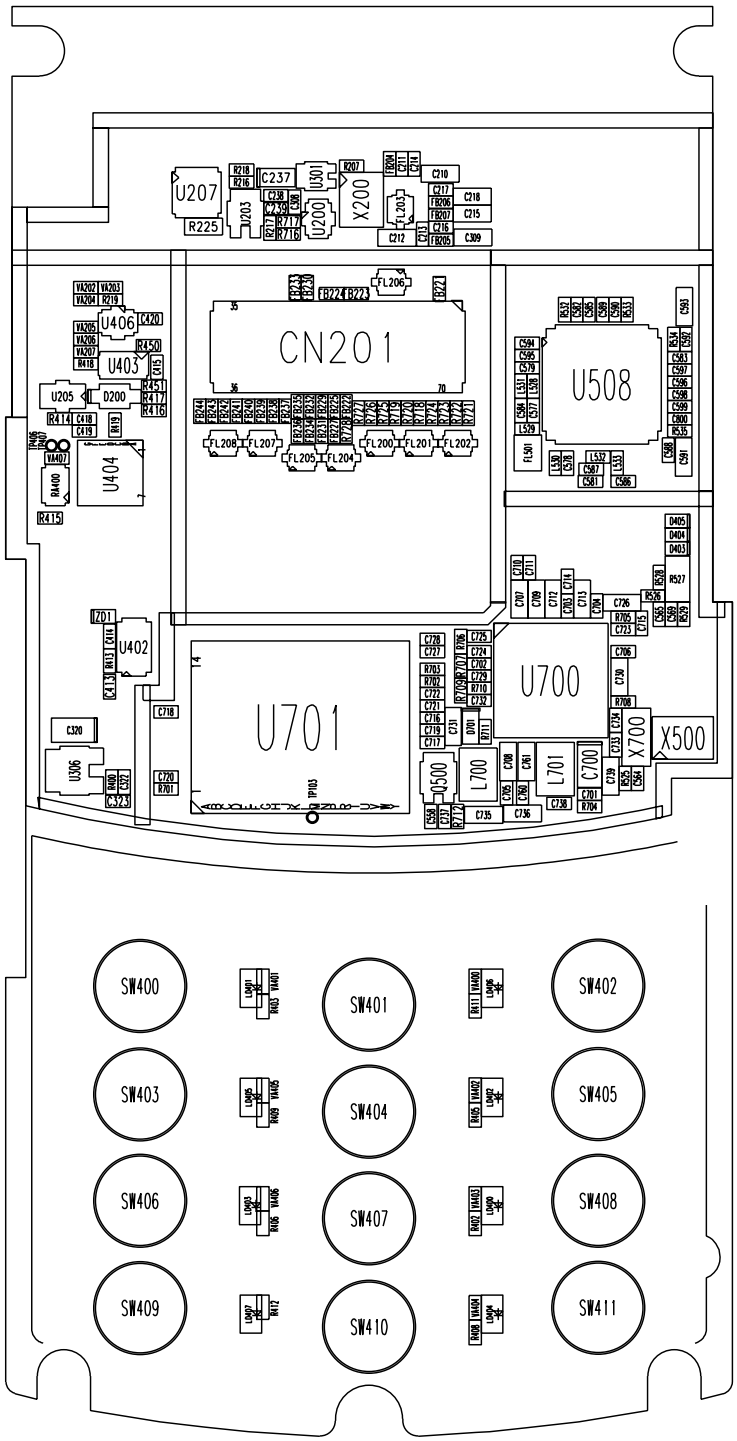
GSM/DCS/PCS_VCO_EN
GSM_TX_VCO_0_EN_N : GSM band Tx VCO Enable
GSM_TX_VCO_1_EN_N : DCS or PCS band Tx VCO Enable

UMTS PA_CTL Signal
TX_AGC_ADJ : WCDMA Tx Power Level Control
HDET1 : WCDMA Tx High Power Level Control
PA_ON : WCDMA Tx Power Amp Enable
W_VMODE_N : WCDMA Tx Power Amp Gain Control

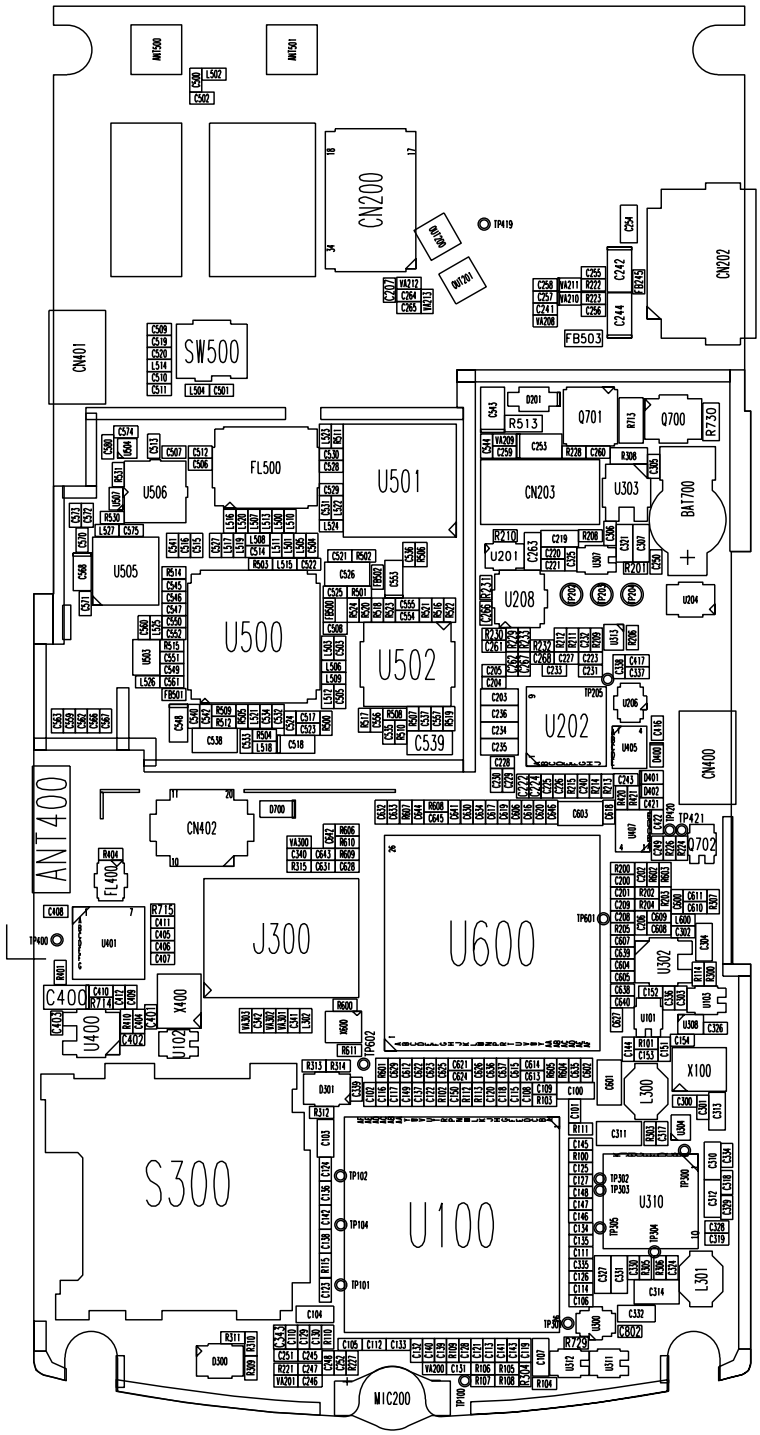
TRK_LO_ADJ : TCXO(19.2M) Control

6. BLOCK DIAGRAM

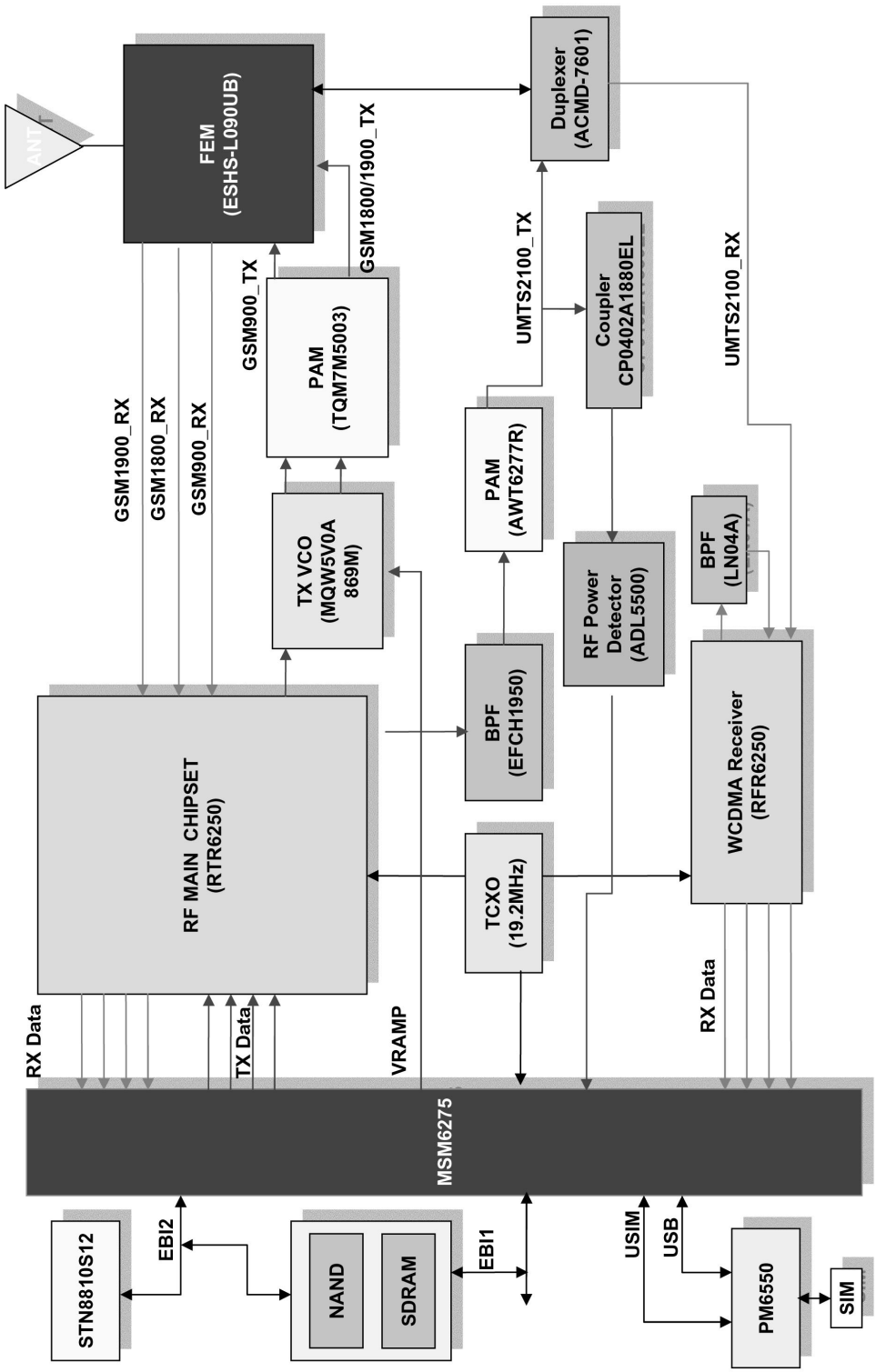
***Top Side**



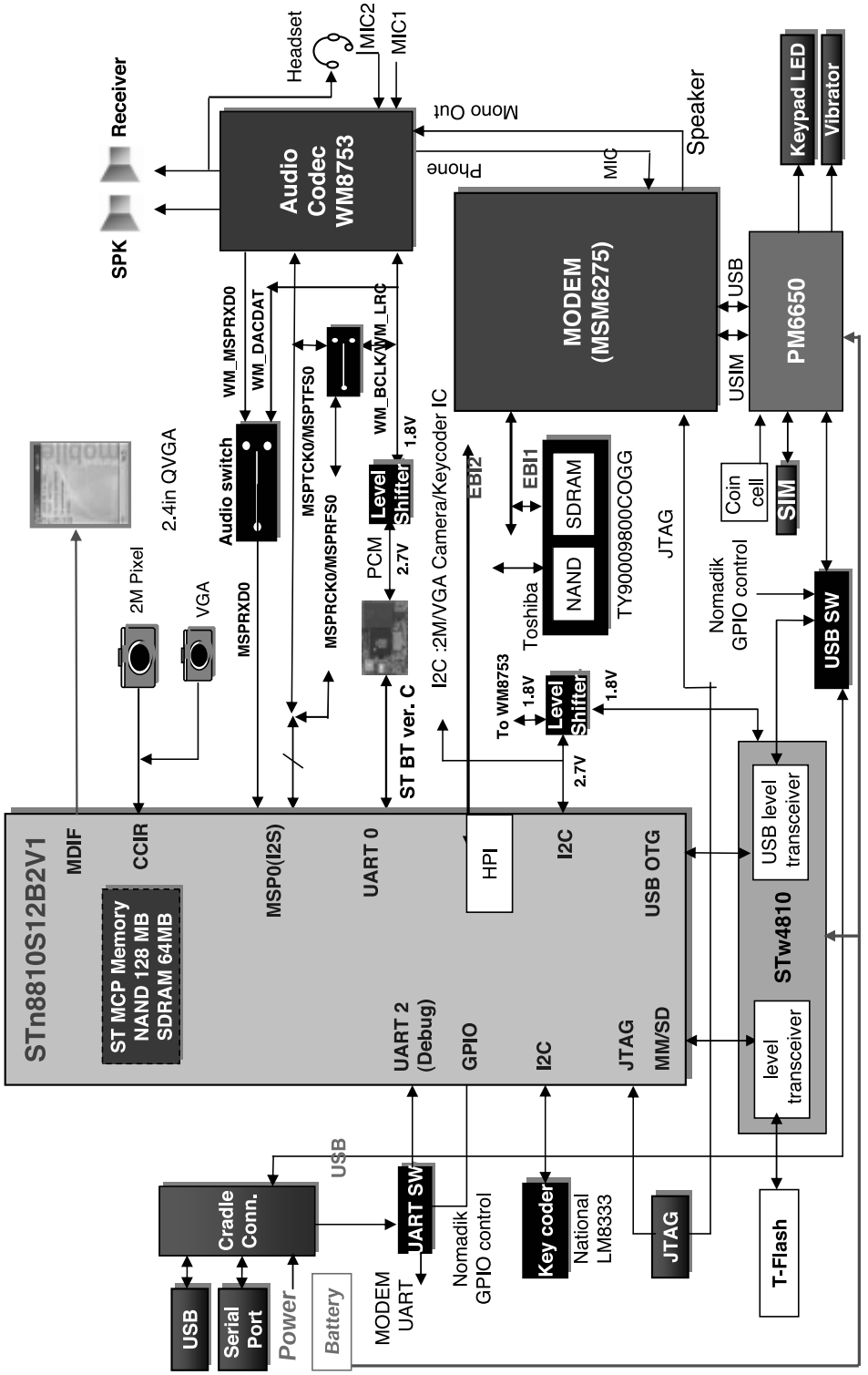
***Bottom Side**



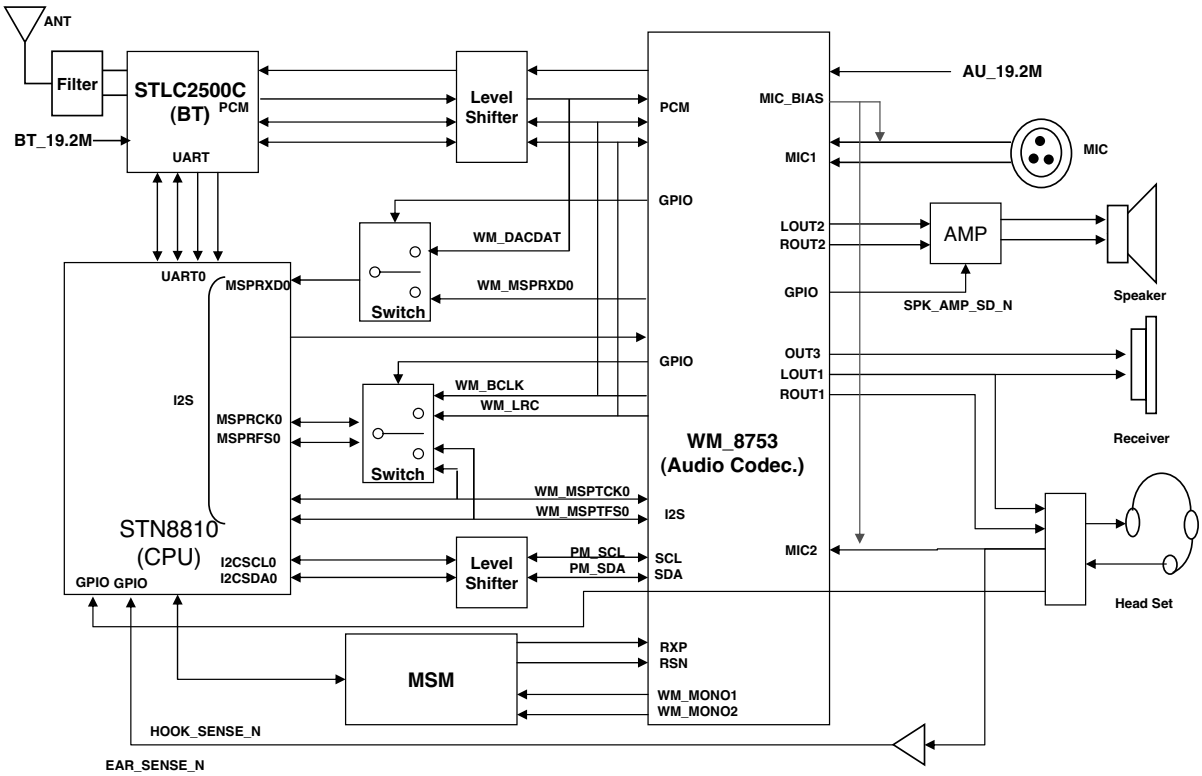
6.3 KS10 Modem & Baseband Block Diagram



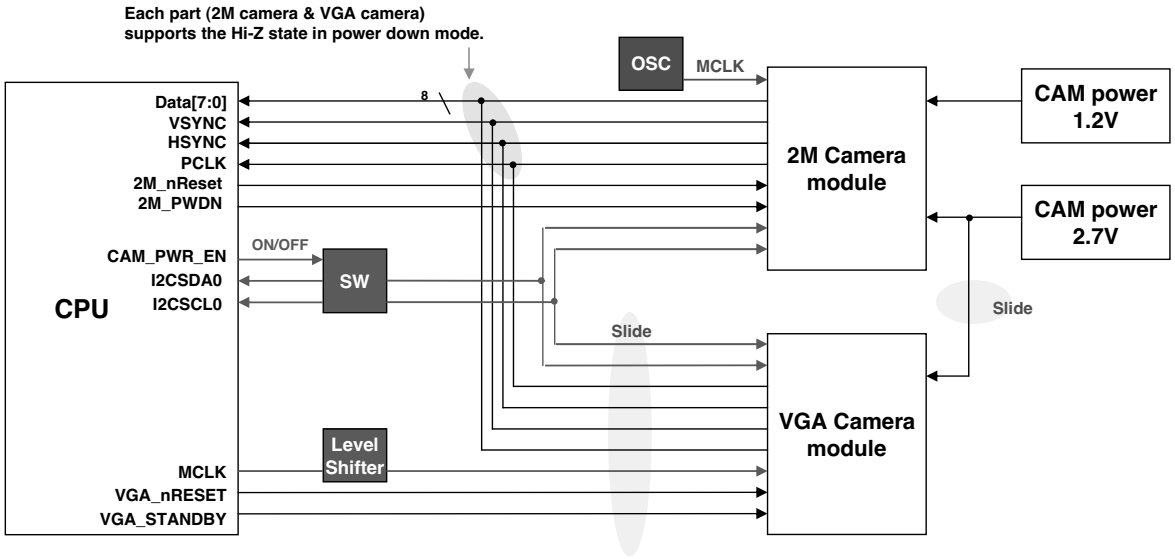
6.4 KS10 Application Processor Block Diagram



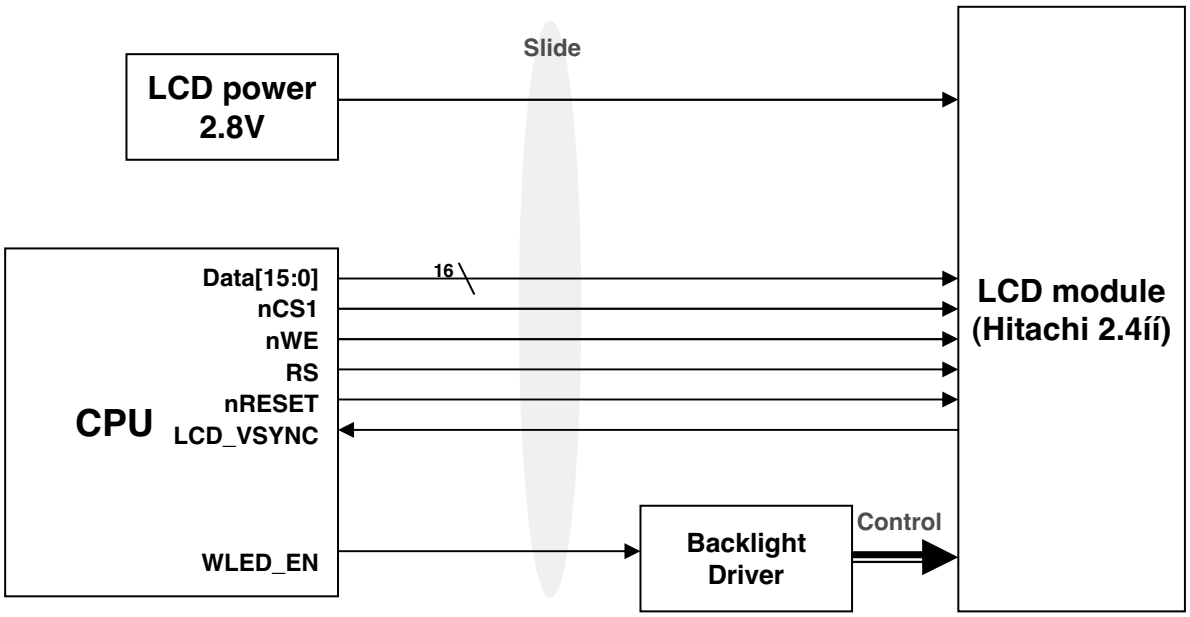
6.5 KS10 Audio & BT Block Diagram



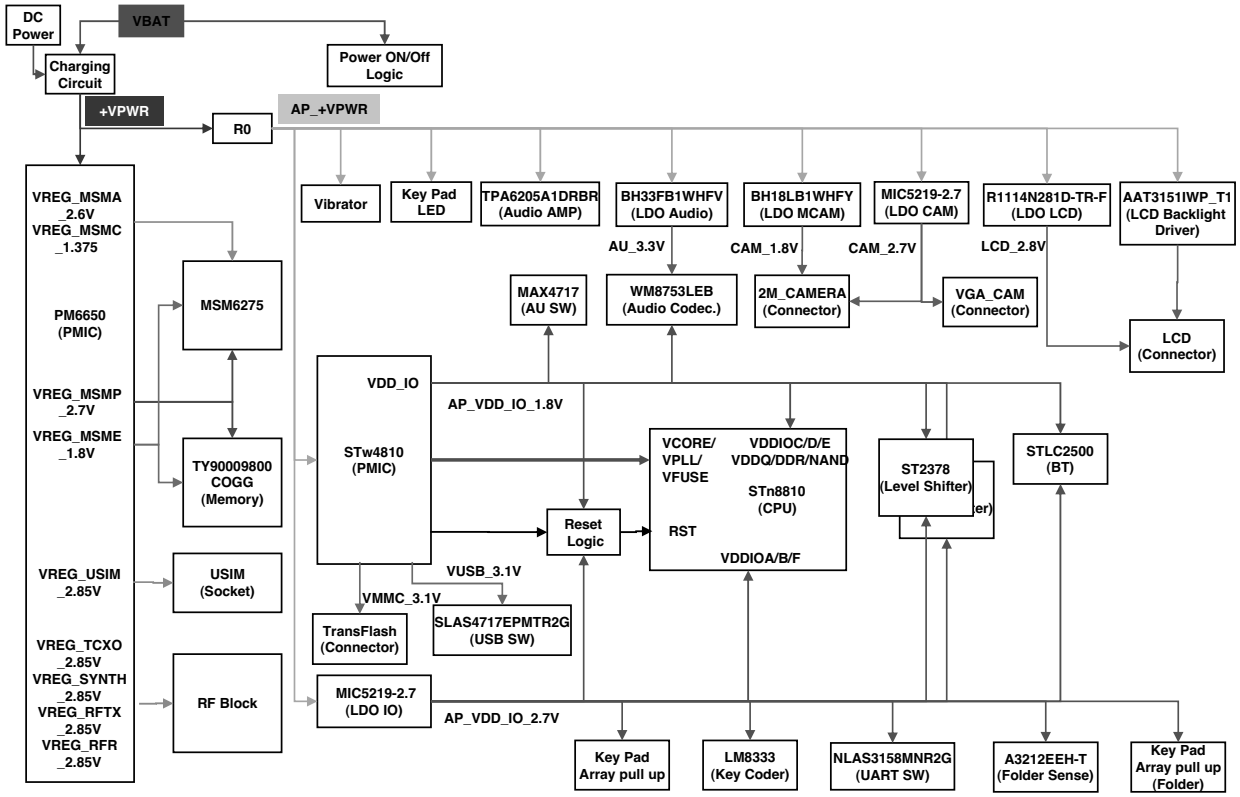
6.6 KS10 Camera Block Diagram



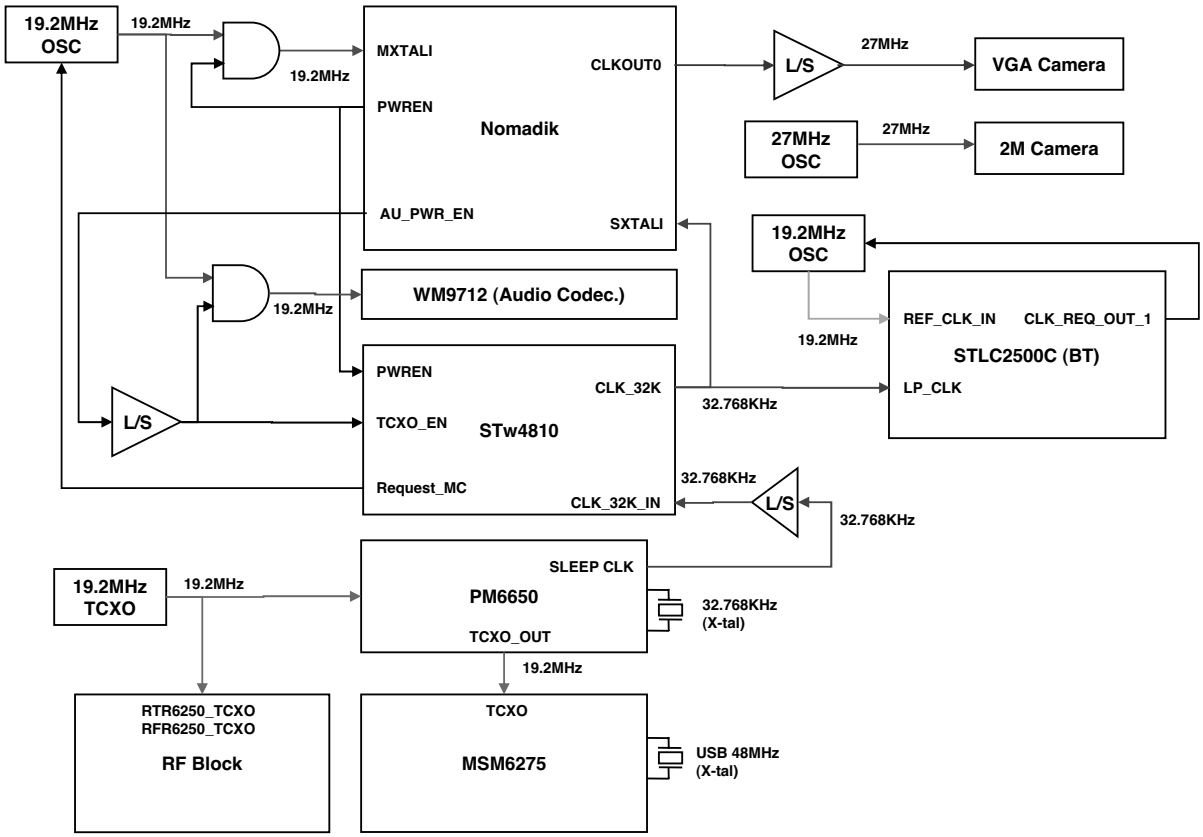
6.7 KS10 LCD Block Diagram



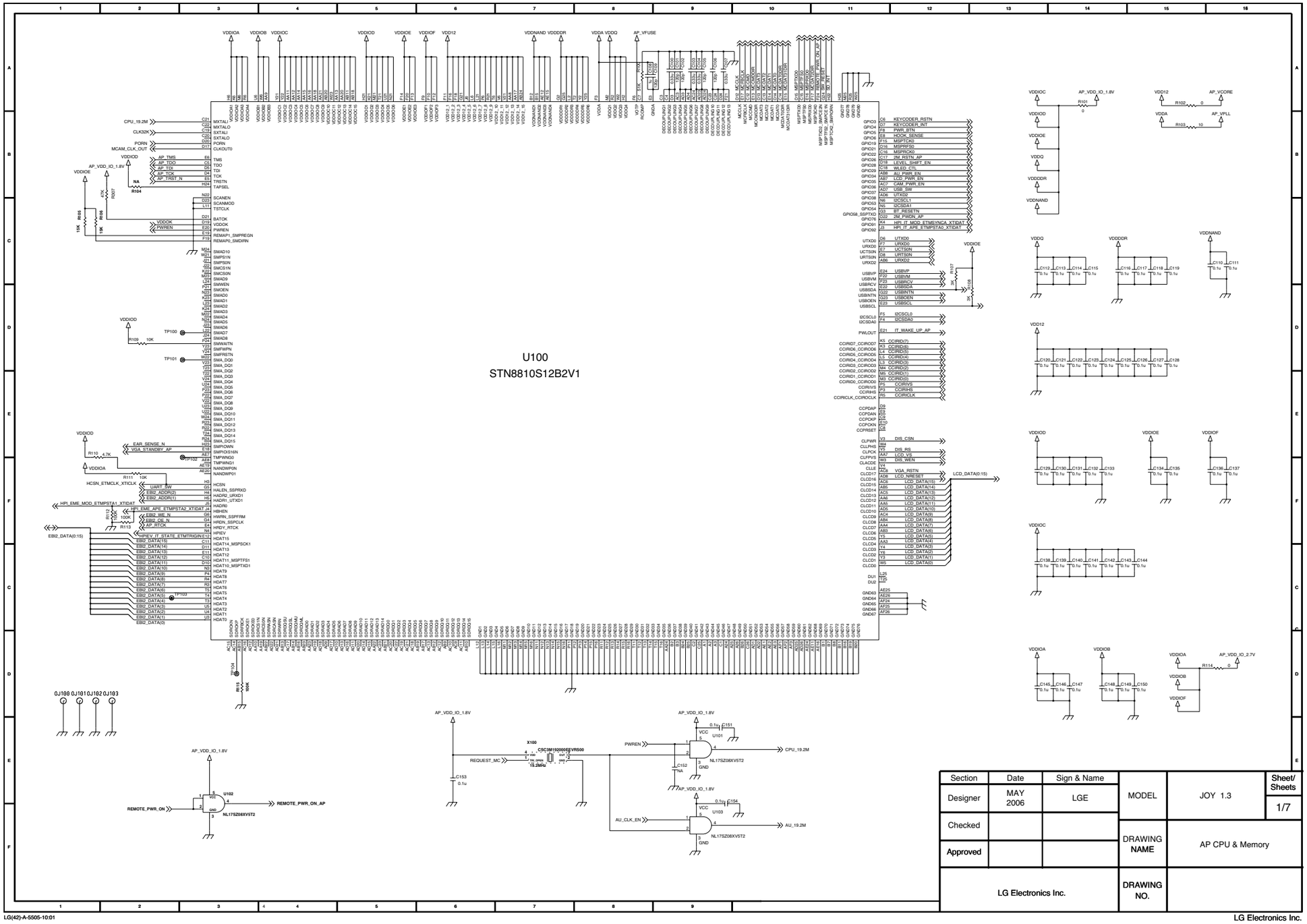
6.8 KS10 Power Distribution Diagram



6.9 KS10 Clock Distribution Diagram



7. CIRCUIT DIAGRAM

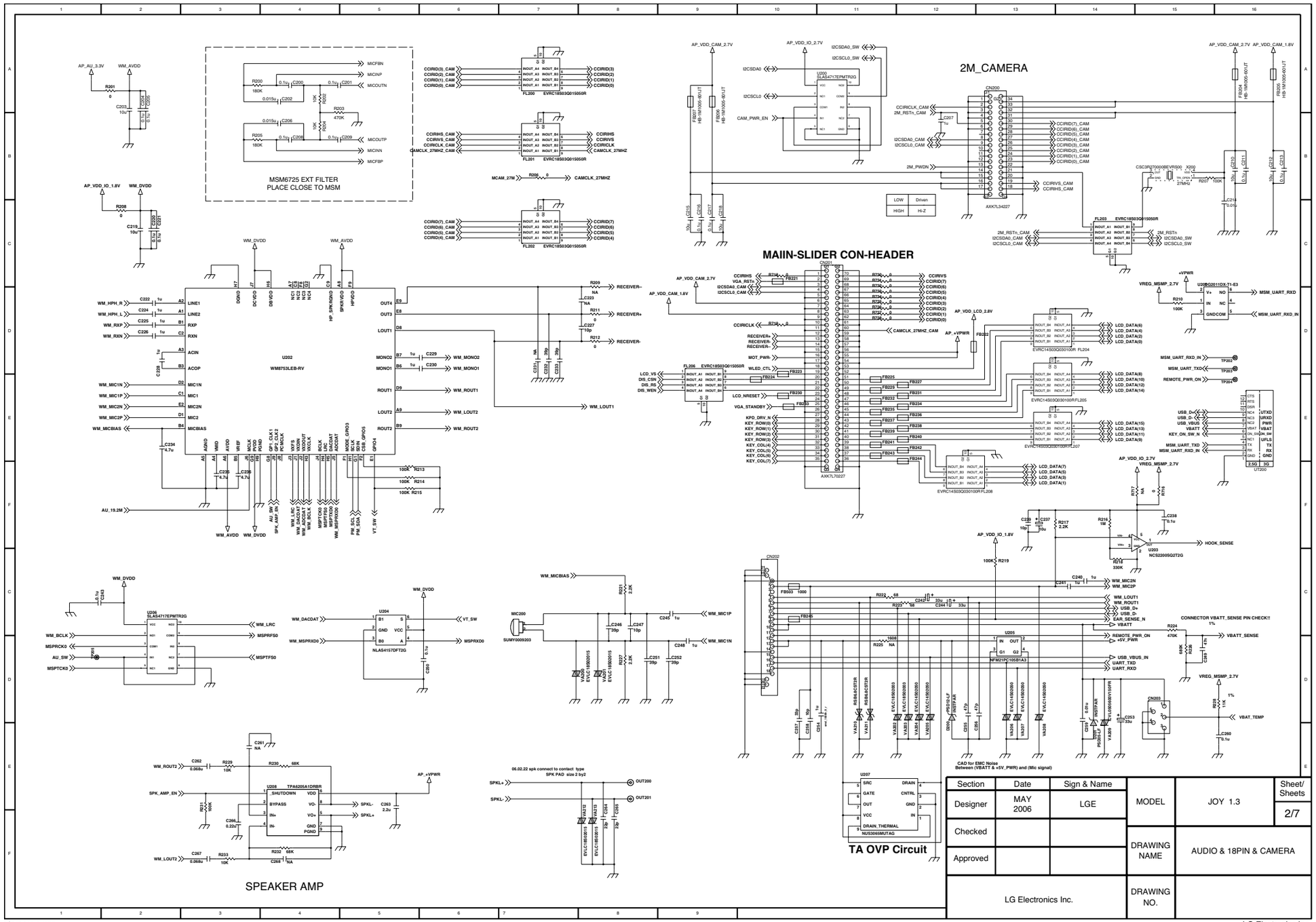


Section	Date	Sign & Name			Sheet/ Sheets
Designer	MAY 2006	LGE	MODEL	JOY 1.3	1/7
Checked			DRAWING NAME	AP CPU & Memory	
Approved					
LG Electronics Inc.			DRAWING NO.		

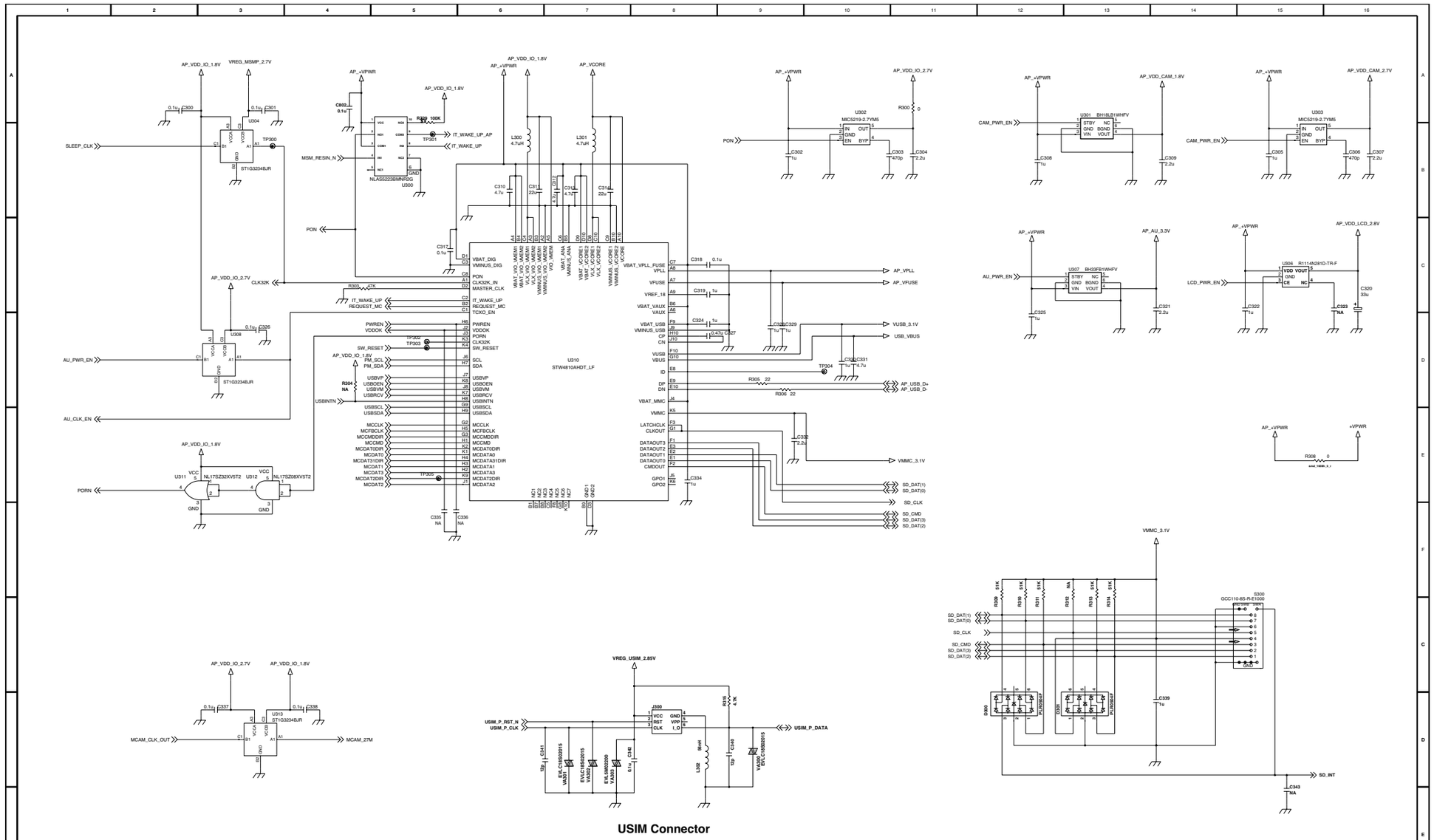
LG(42)-A-5505-10:01

LG Electronics Inc.

7. CIRCUIT DIAGRAM



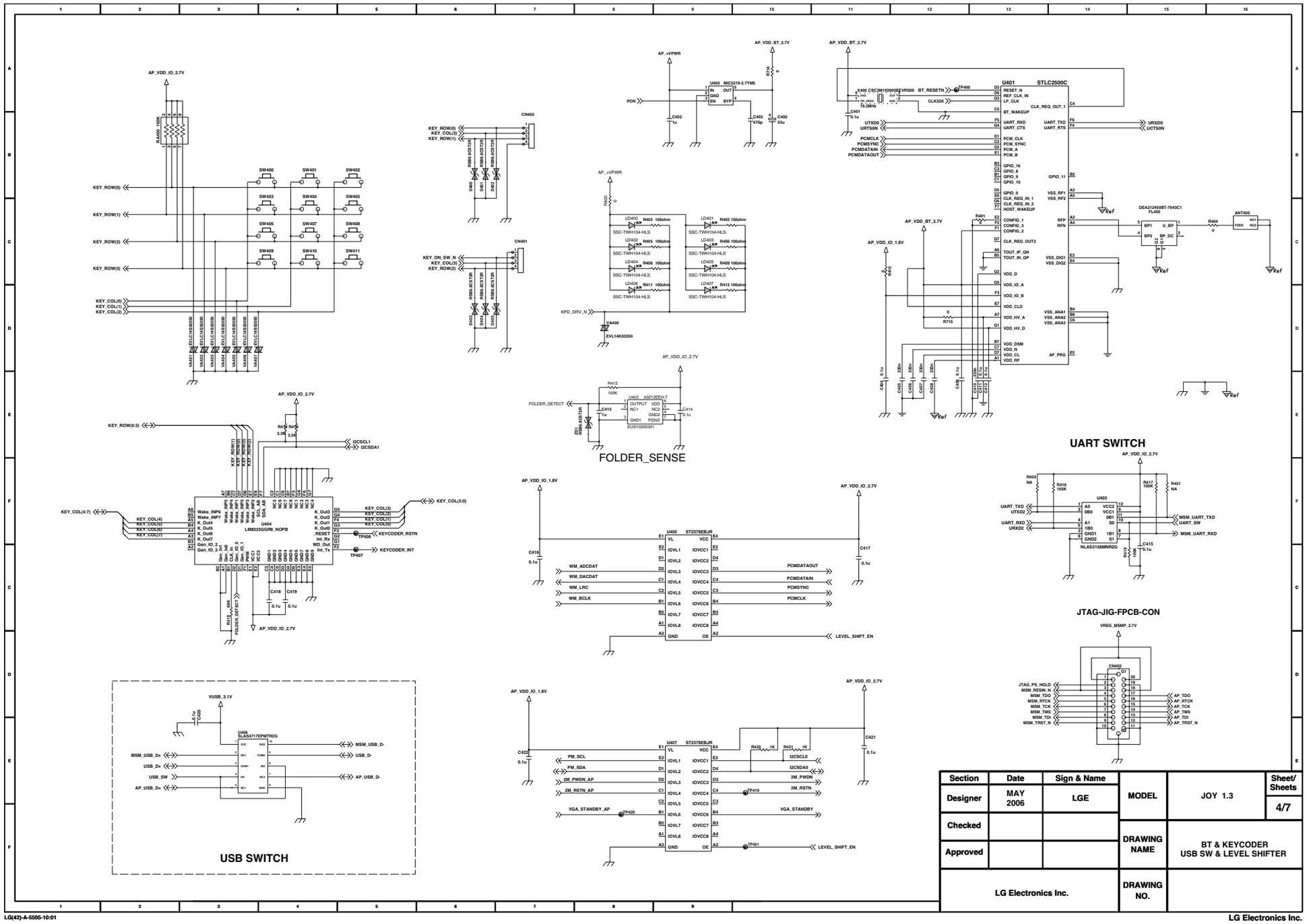
7. CIRCUIT DIAGRAM



Section	Date	Sign & Name			Sheet/ Sheets
Designer	MAY 2006	LGE	MODEL	JOY 1.3	3/7
Checked			DRAWING NAME	AP POWER & T-Flash CON	
Approved					
LG Electronics Inc.			DRAWING NO.		

LG Electronics Inc.

7. CIRCUIT DIAGRAM

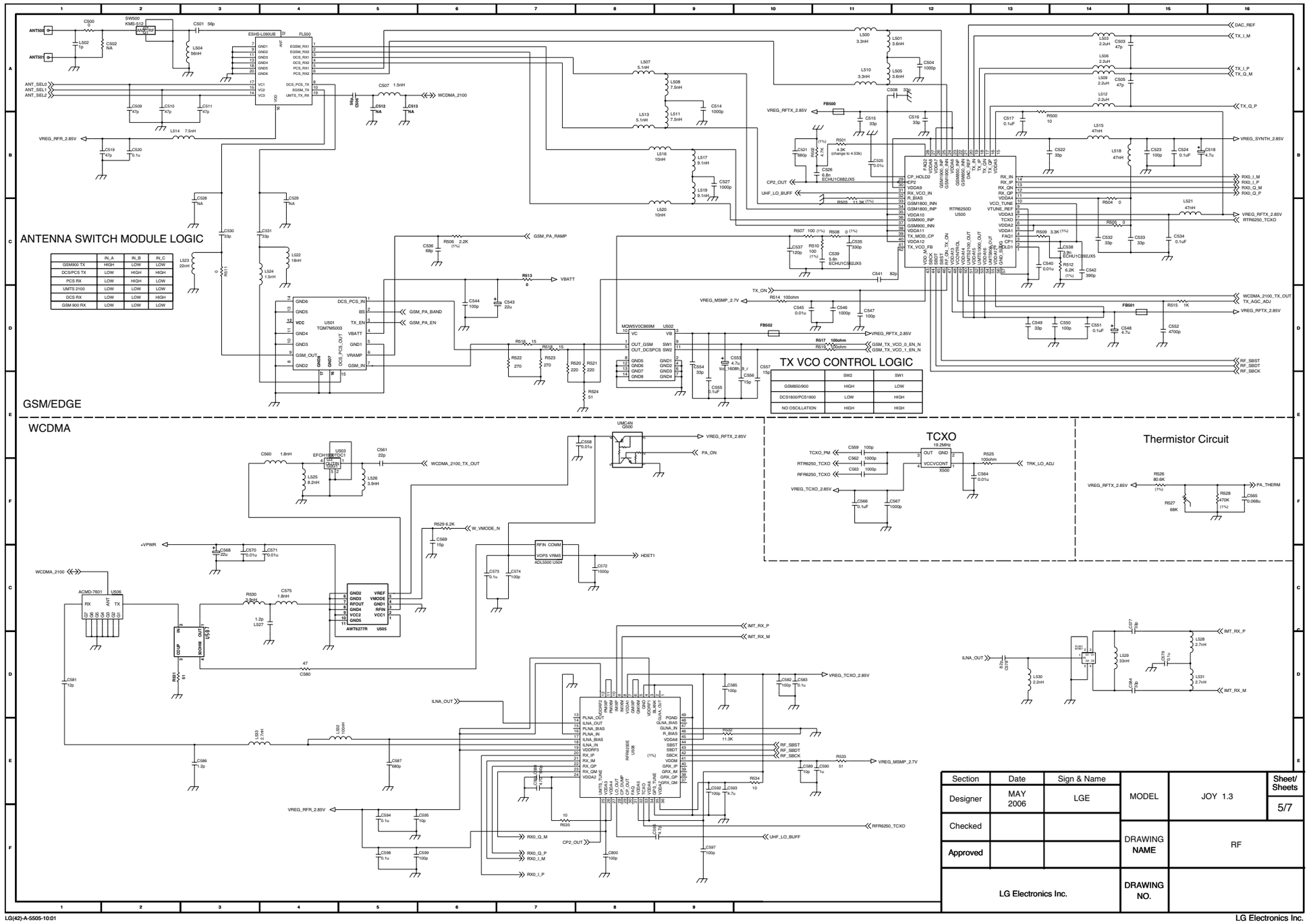


Section	Date	Sign & Name			Sheet/ Sheets
Designer	MAY 2006	LGE	MODEL	JOY 1.3	4/7
Checked			DRAWING NAME	BT & KEYCODER USB SW & LEVEL SHIFTER	
Approved					
LG Electronics Inc.			DRAWING NO.		

LG(42)-A-5505-10:01

LG Electronics Inc.

7. CIRCUIT DIAGRAM



IN_A	IN_B	IN_C
GSM900 TX	HIGH	LOW	LOW
DCS/PCS TX	LOW	HIGH	HIGH
PCS RX	LOW	HIGH	LOW
UMTS 2100	LOW	LOW	LOW
DCS RX	LOW	LOW	HIGH
GSM 900 RX	LOW	LOW	LOW

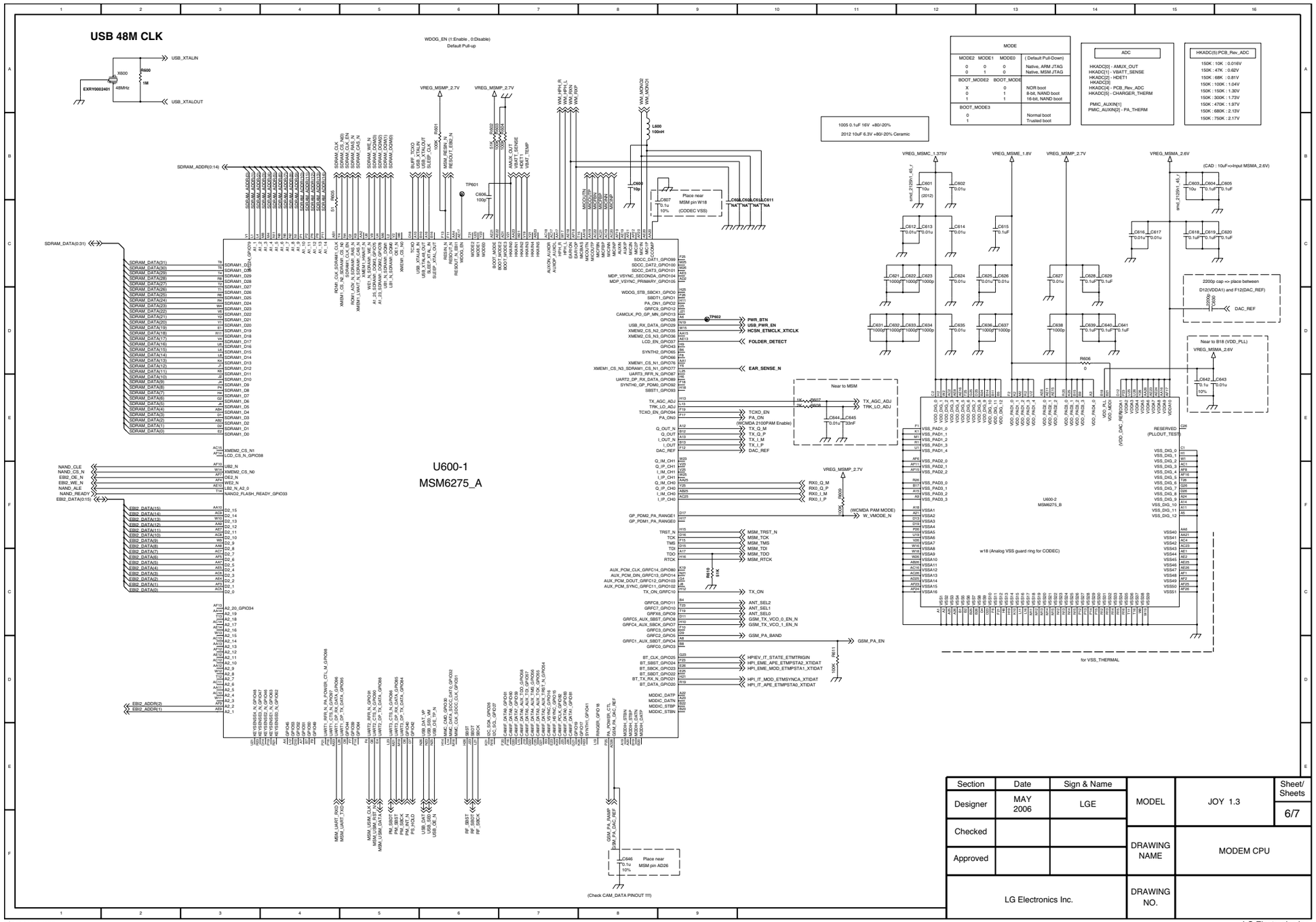
	SW2	SW1
GSM850/900	HIGH	LOW
DCS1800/PCS1900	LOW	HIGH
NO OSCILLATION	HIGH	HIGH

Section	Date	Sign & Name			
Designer	MAY 2006	LGE	MODEL	JOY 1.3	Sheet/ Sheets 5/7
Checked			DRAWING NAME	RF	
Approved					
LG Electronics Inc.			DRAWING NO.		

LG(42)-A-5505-10:01

LG Electronics Inc.

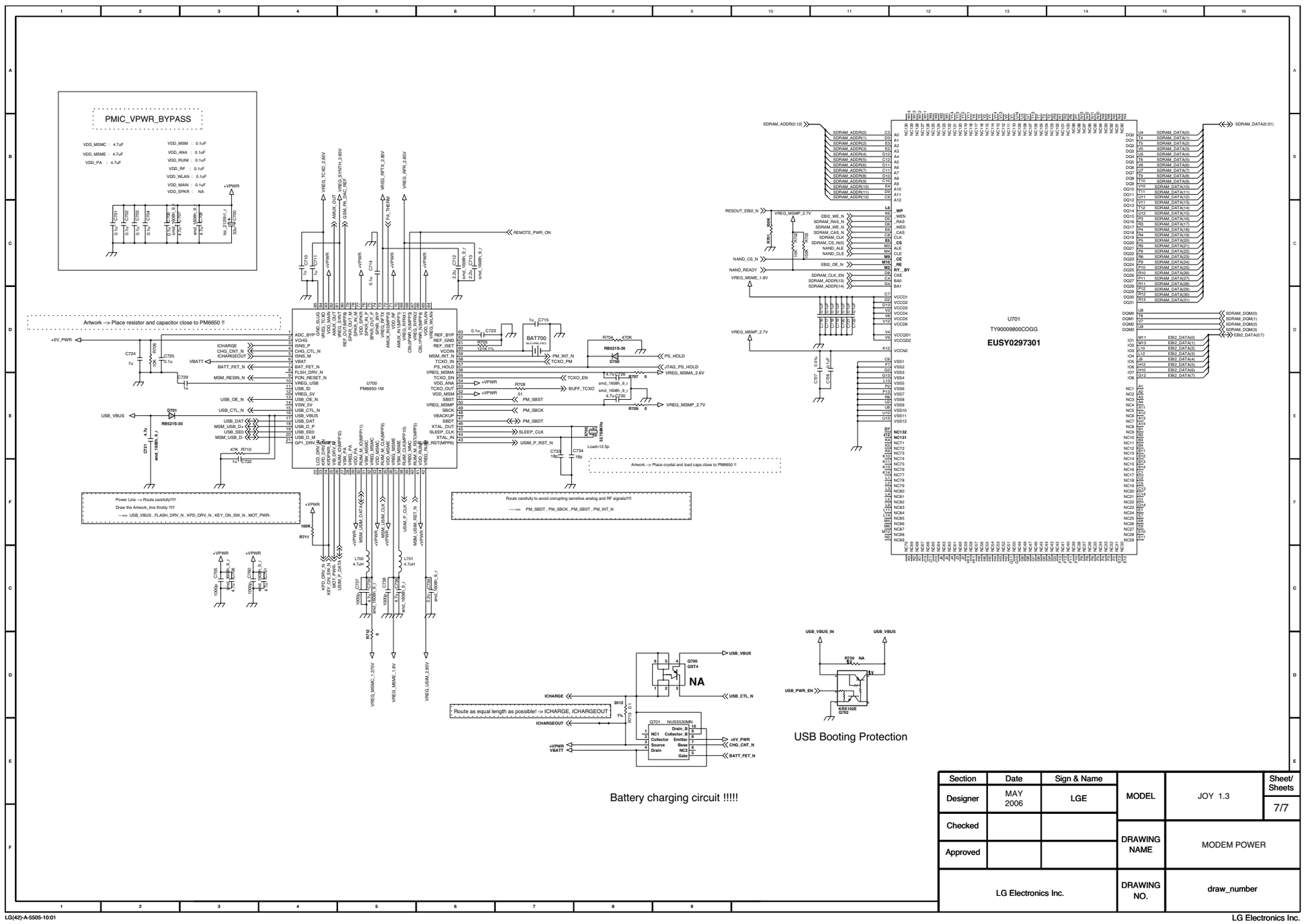
7. CIRCUIT DIAGRAM



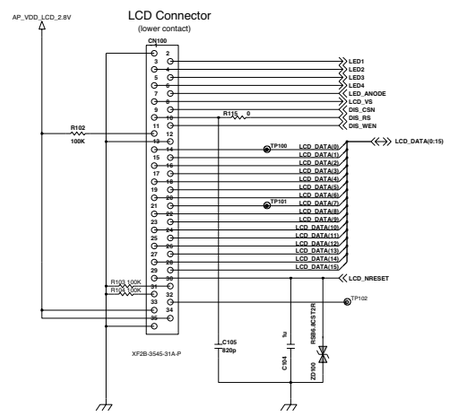
LG(42)-A-5505-10:01

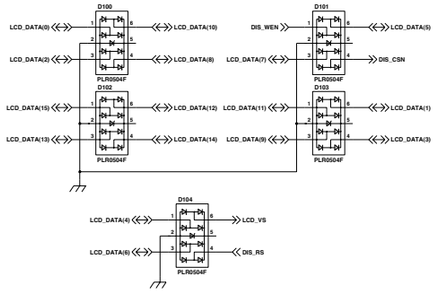
LG Electronics Inc.

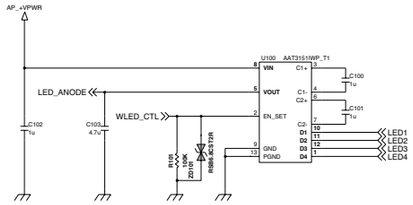
7. CIRCUIT DIAGRAM



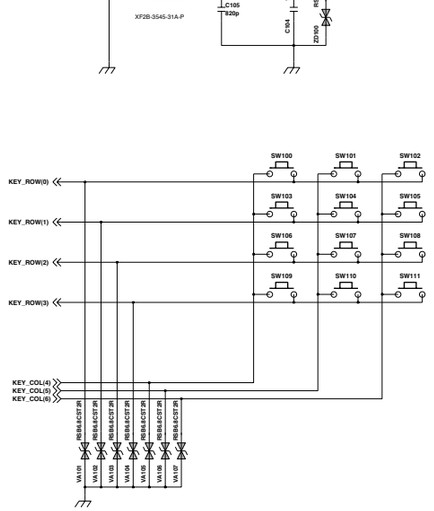
7. CIRCUIT DIAGRAM



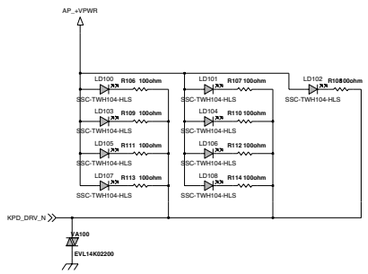




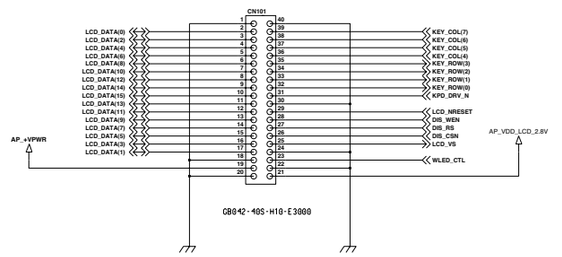
LCD_Backlight driver



FUNCTION KEYPAD LED



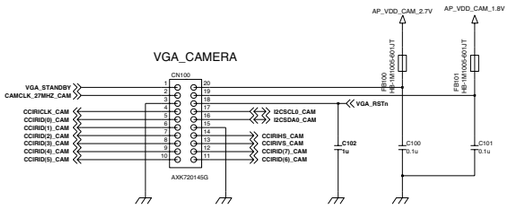
FUNCTION-SLIDER CON-HEADER

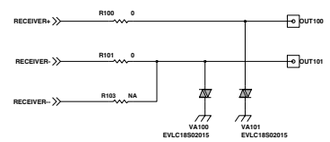


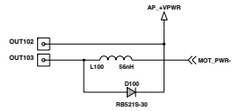
Section	Date	Sign & Name			Sheet/ Sheets
Designer	MAY 2006	LGE	MODEL	JOY 1.3	1/1
Checked			DRAWING NAME	LCD & FUNCTION KEY	
Approved					
LG Electronics Inc.			DRAWING NO.		

LG Electronics Inc.

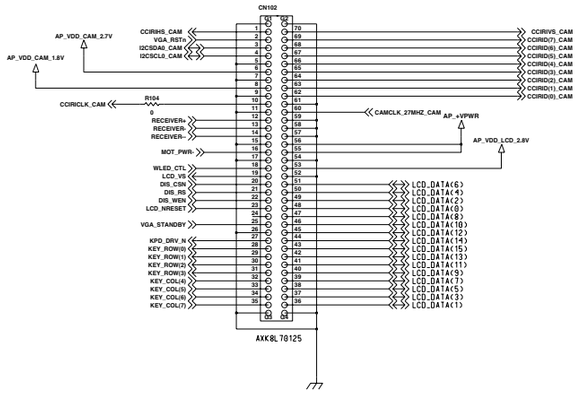
7. CIRCUIT DIAGRAM



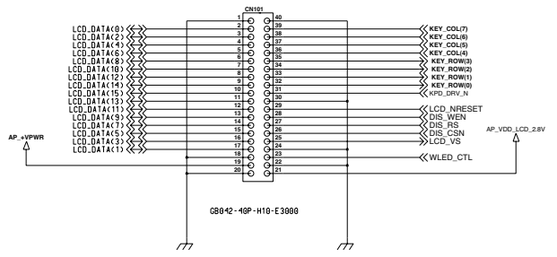




MAIIN-SLIDER CON-SOCKET



FUNCTION-SLIDER CON-SOCKET

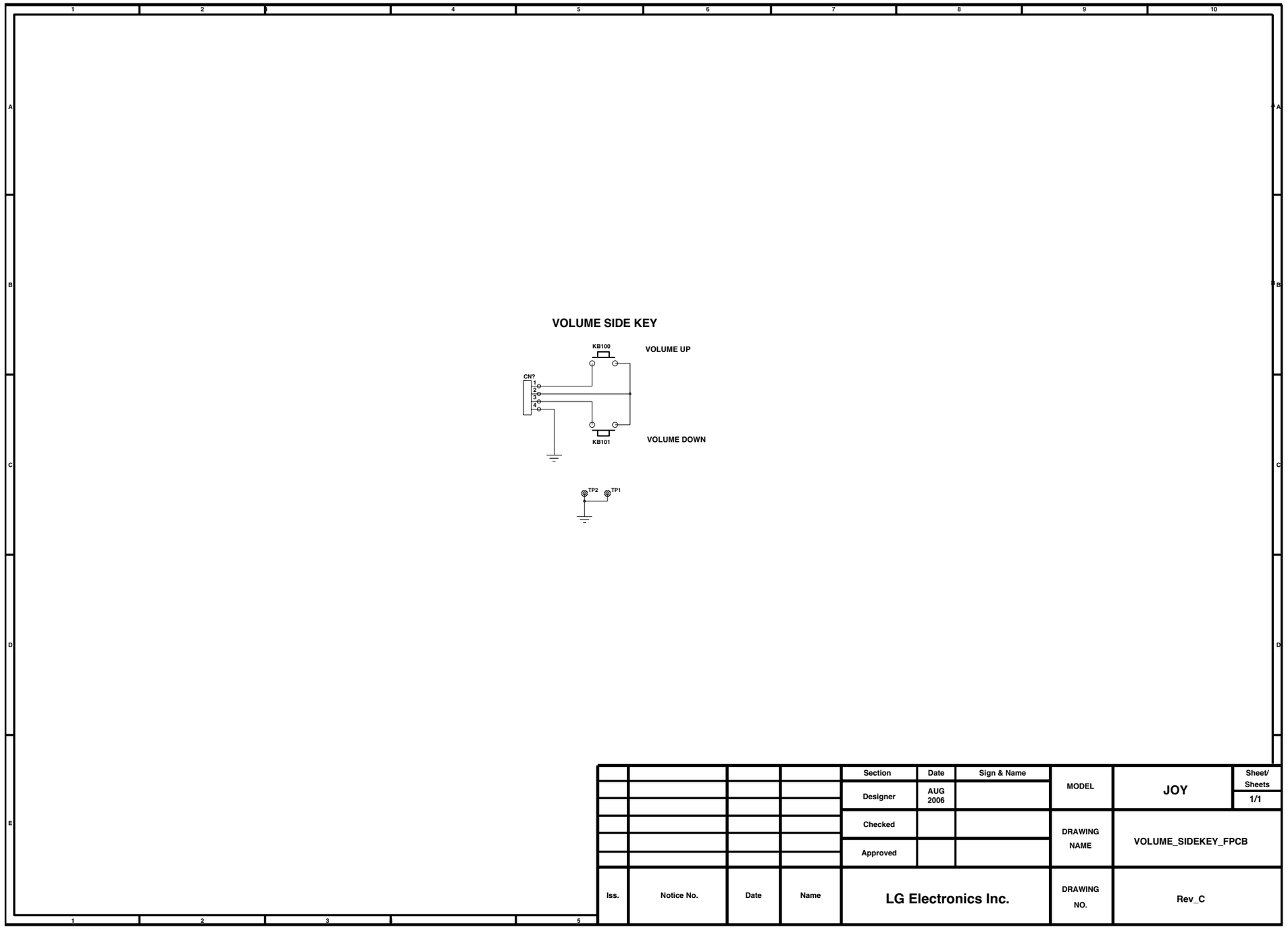


TP100TP101TP102TP103TP104TP105

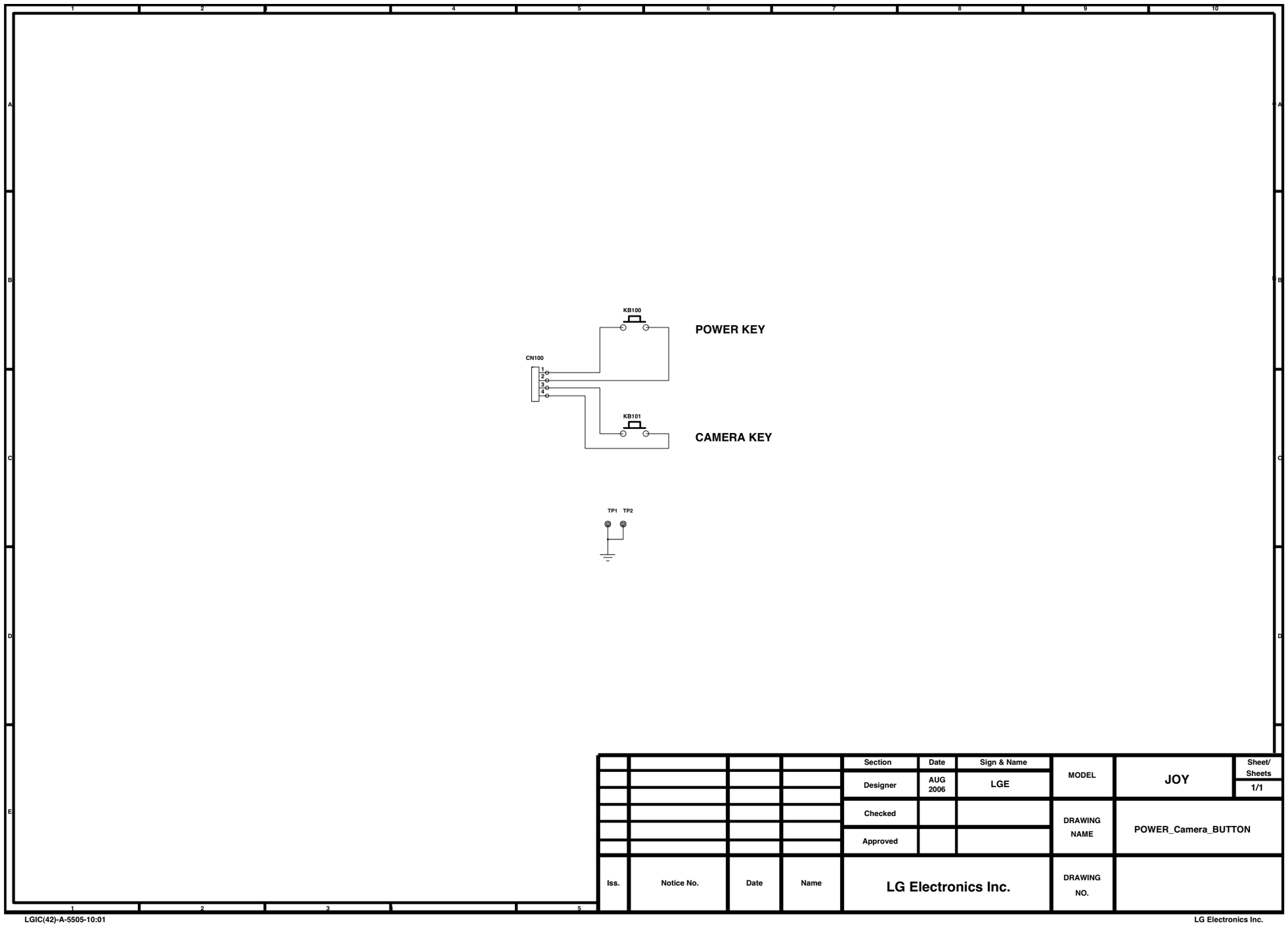
Section	Date	Sign & Name			Sheet/ Sheets
Designer	MAY 2006	LGE	MODEL	JOY 1.3	1/1
Checked			DRAWING NAME	SLIDER FPCB	
Approved					
LG Electronics Inc.			DRAWING NO.		

LG Electronics Inc.

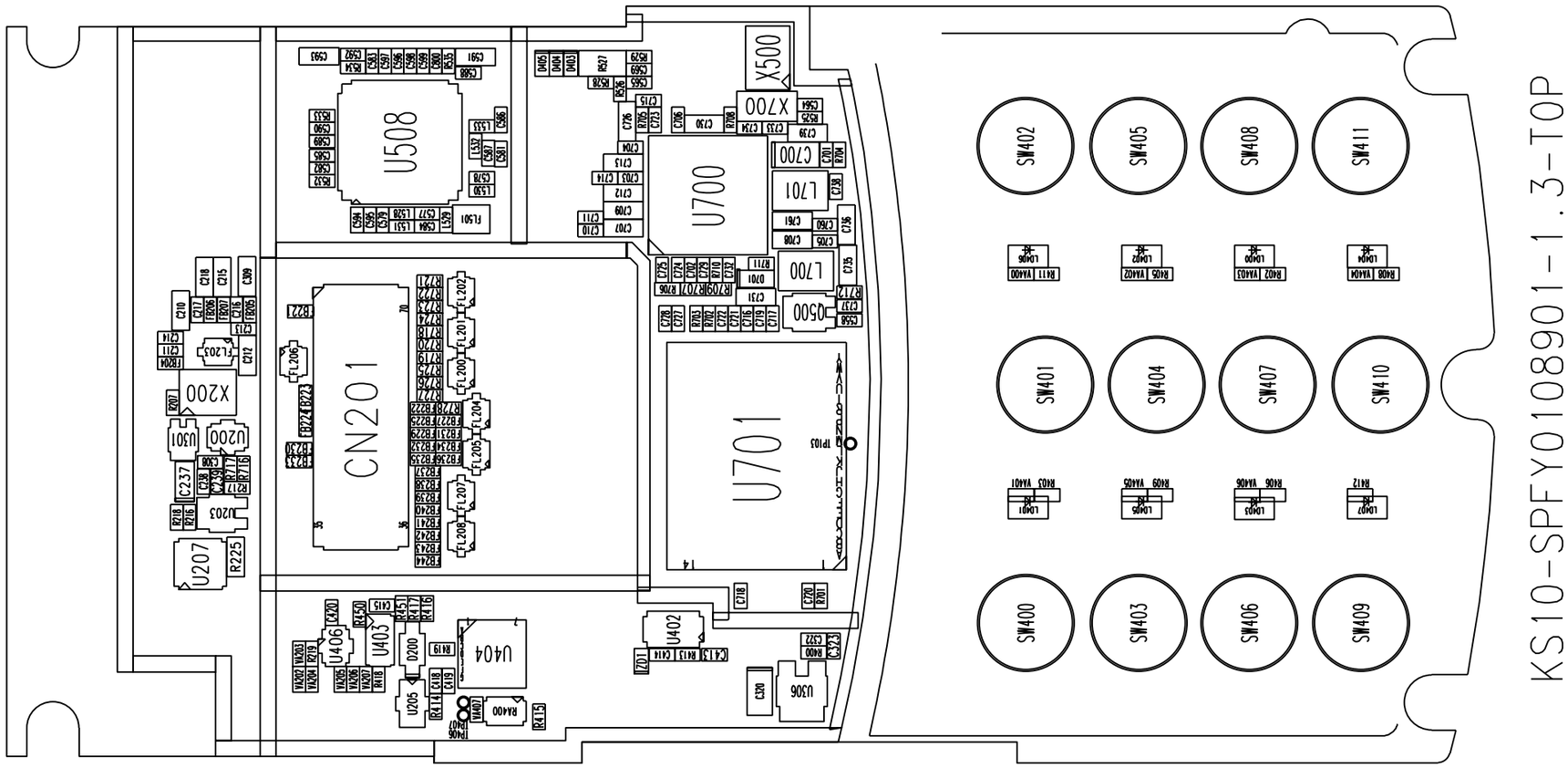
7. CIRCUIT DIAGRAM



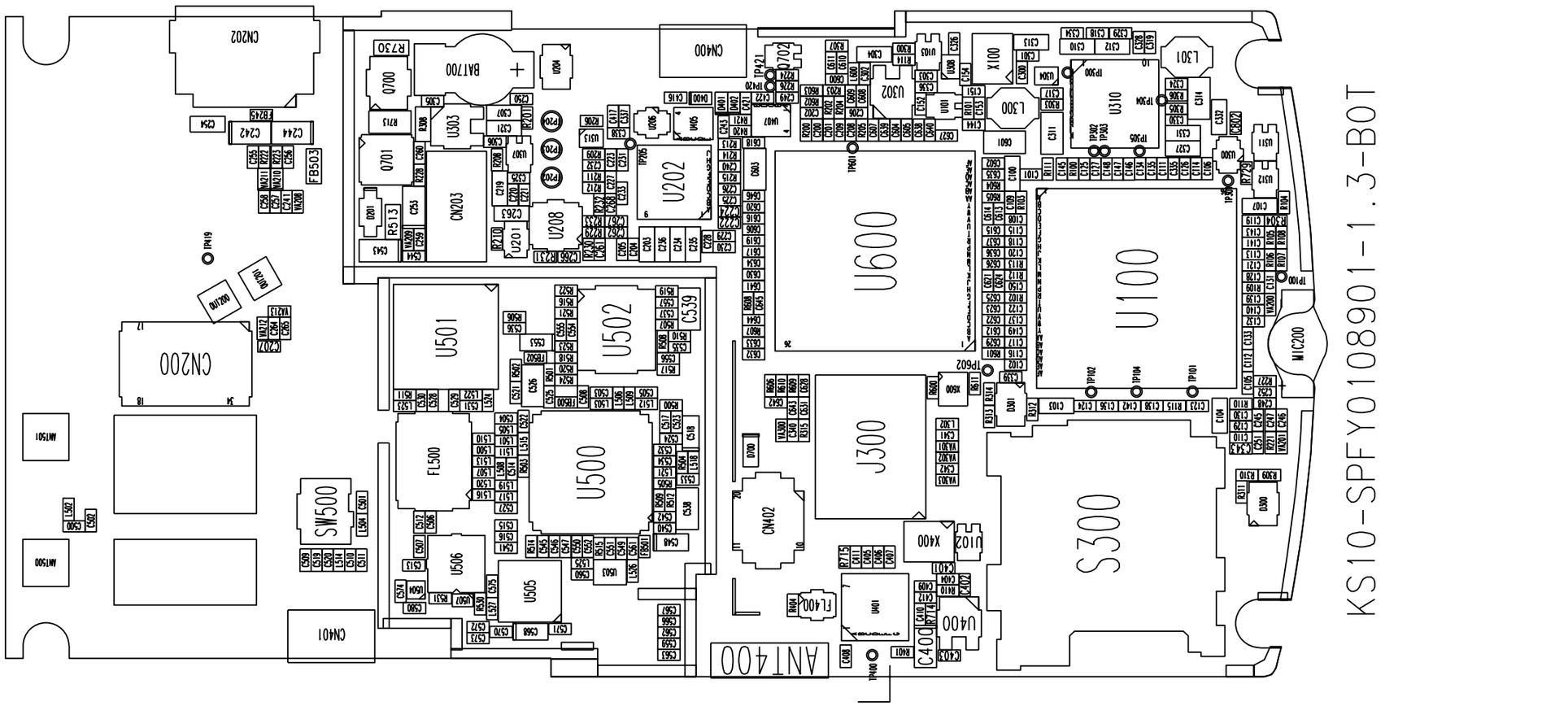
7. CIRCUIT DIAGRAM



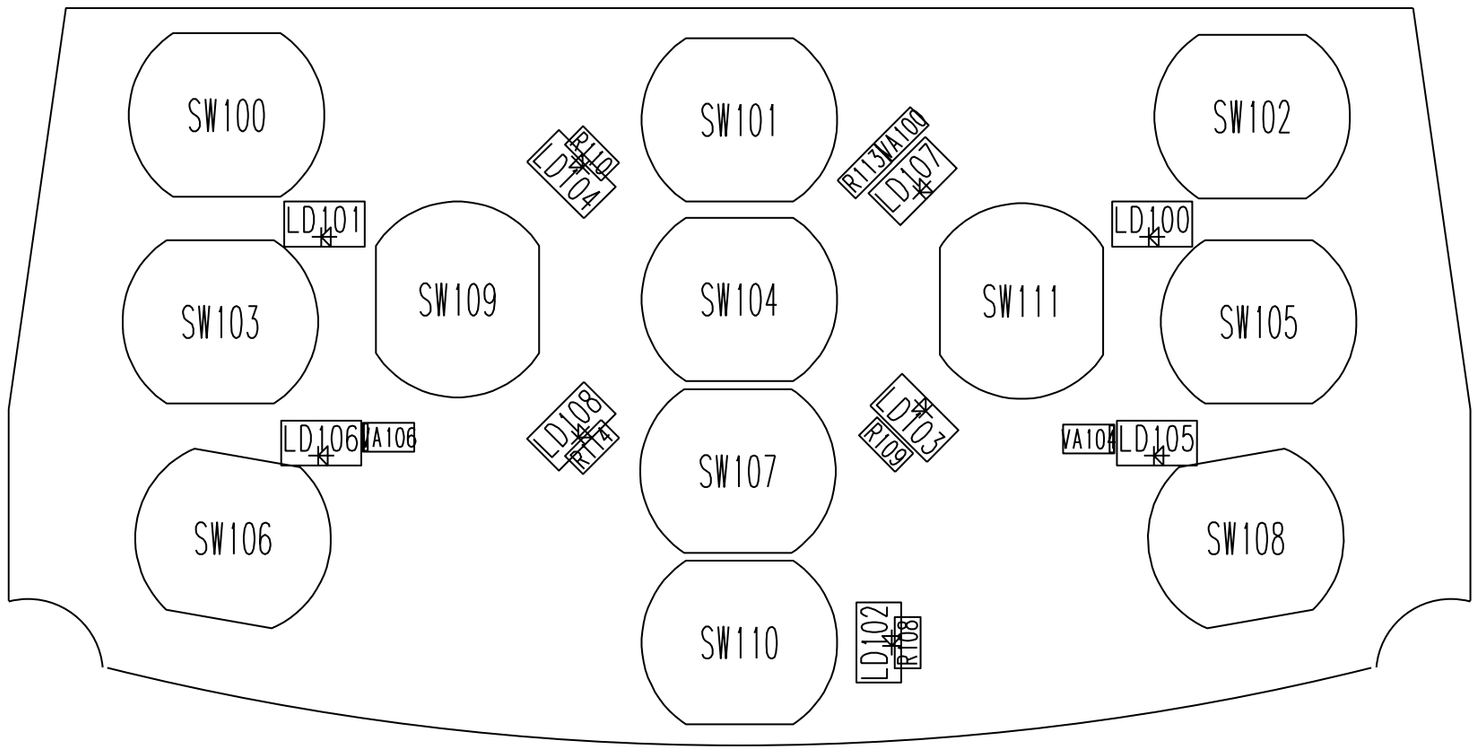
8. PCB LAYOUT



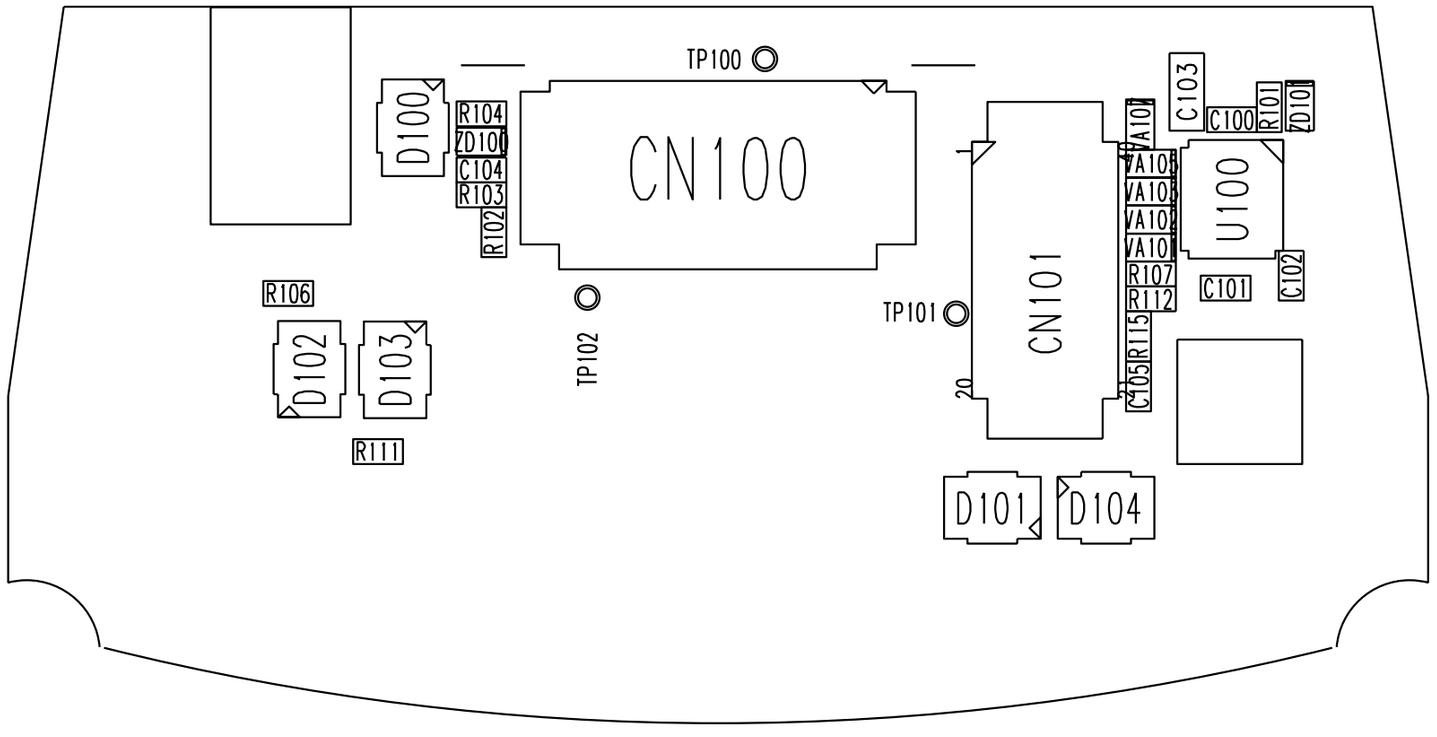
8. PCB LAYOUT



8. PCB LAYOUT

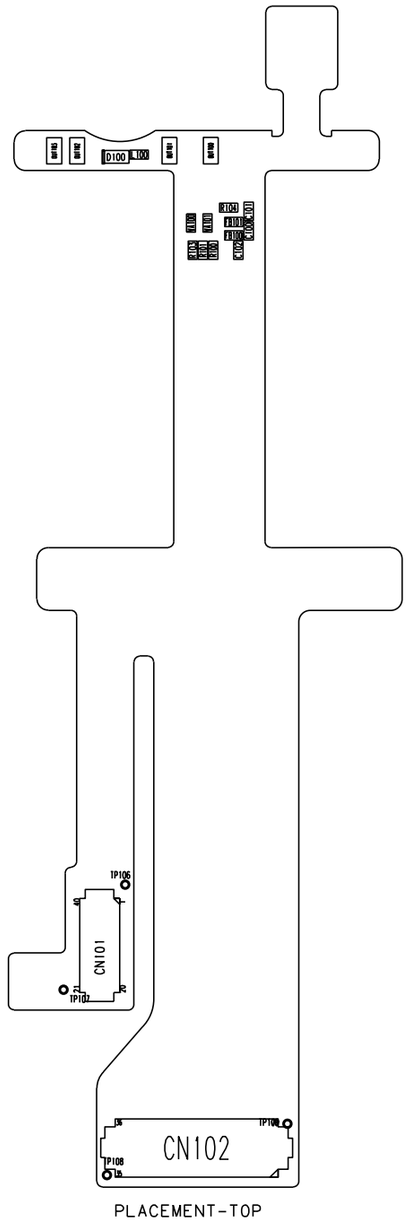


8. PCB LAYOUT



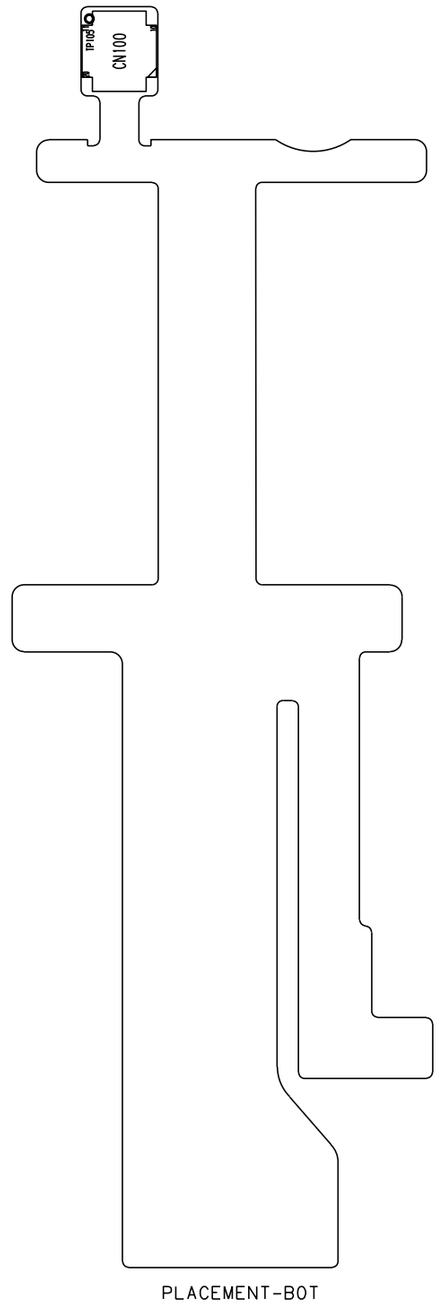
KS10-SUB-SPJY0025701-1.2-BOTTOM

8. PCB LAYOUT



PLACEMENT-TOP

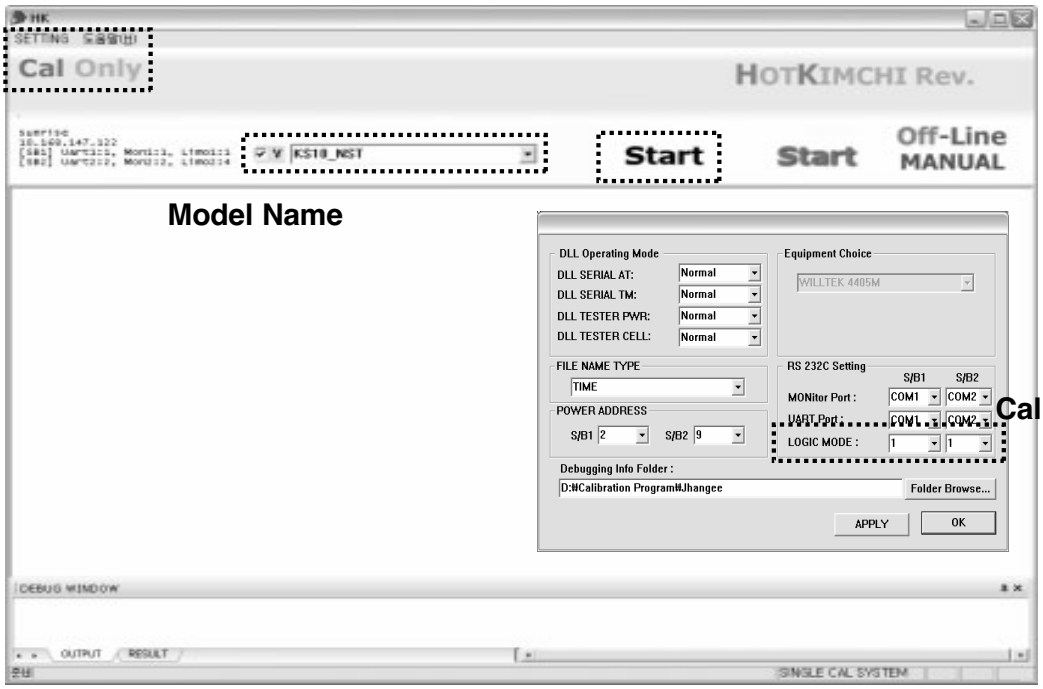
8. PCB LAYOUT



9. Usage of Hot-Kimchi

9.1 Usage of Hot-Kimchi

9.1.1 Calibration

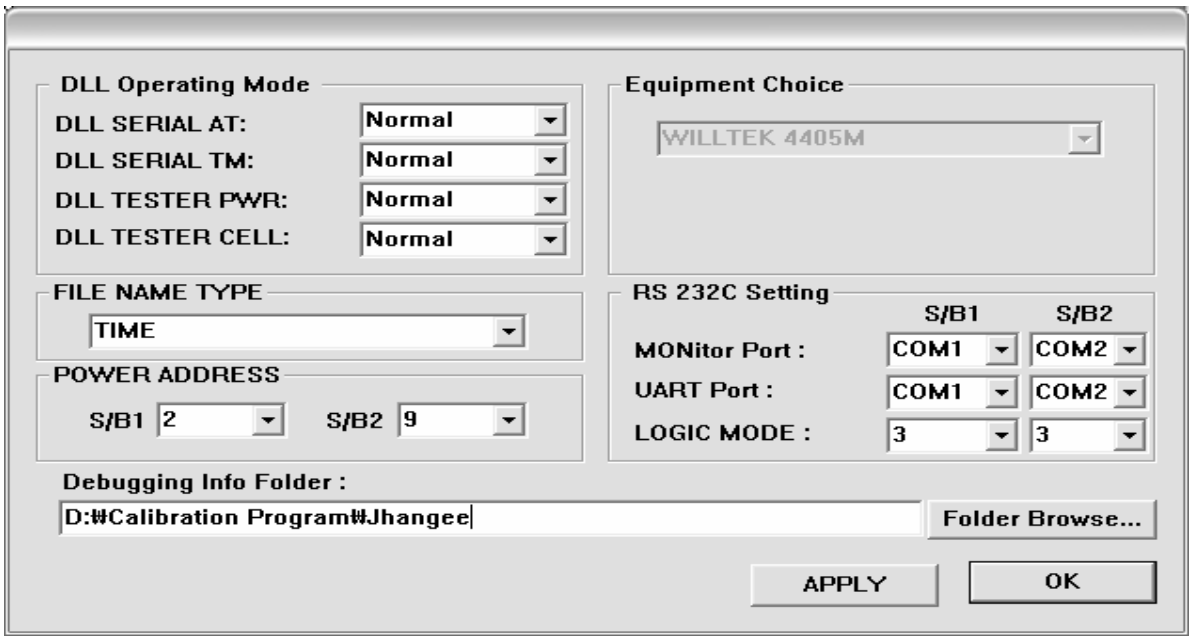


Calibration only

- **Procedure**

1. Click SETTING in menu, and logic operation in sub-menu.
   Choose “1” in LOGIC MODE (means calibration alone)
2. Select the model name which you want in list box
3. Click Start button to calibrate a phone

9.1.2 Basic Setting



• **Contents**

✔ Click SETTING in menu, and logic operation in sub-menu.

✔ You can select how to control AT comm, Testset, and Power supply in DLL Operating Mode.

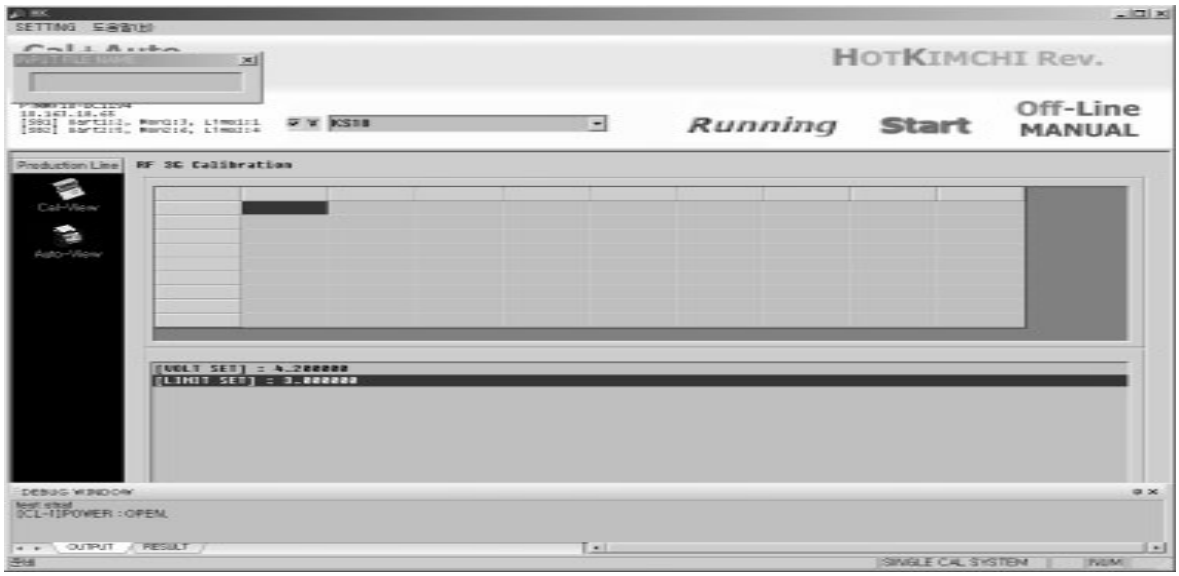
✔ You can set UART Port and logic mode. (mode 1 : Calibration alone)

✔ You can set Result File's name type. If you choose "TIME", the saved files' name is saved in a run - time.

✔ You can run the multi mode (S/B1,S/B2 : You can use S/B1 for only one port.)

✔ You can set the path of HOTKIMCHI program.

9.1.3 Log of Calibration and Test



- **Contents**
  - ✔ On Running, Log window is created in center area. It displays logs of command, and measurements of Calibration or Autotest.
  - ✔ The result files are saved in the directory “~janghee\debug\Cal”, “~janghee\debug\Auto”, or “~janghee\debug\CalAuto”.

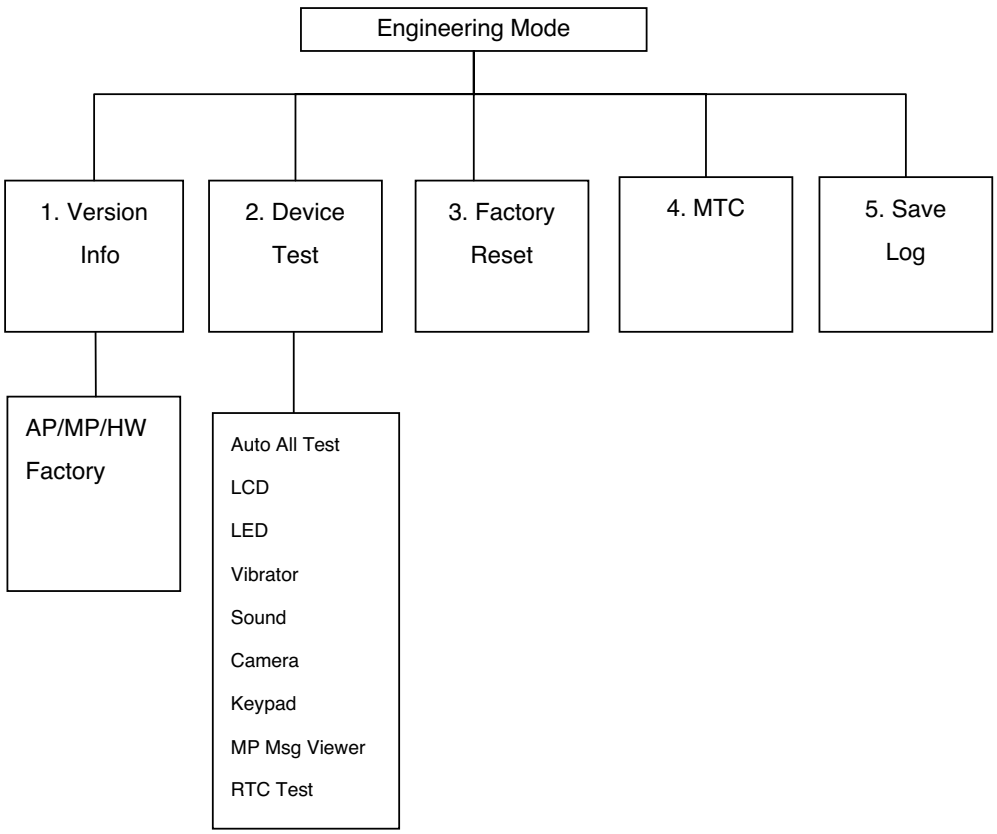
10. Engineering Mode

A. About Engineering Mode

Engineering mode is designed to allow a service man/engineer to view and test the basic functions provided by a handset.

B. Access Codes

The key sequence for switching the engineering mode on is *#001*2580#. Pressing END will switch back to non-engineering mode operation.



- Options of in Main view :
  - Set AP Debugmode On
  - Set MP Debugmode On

10.1 Version Info

10.1.1 AP/MP/HW Version

10.1.2 Factory Version

10.2 Device Test

10.2.1 Auto All Test

LCD On/Off -> Keypad LED On/Off -> Color Auto Test -> Ringtone Test -> Vibrator Test -> Keypad Test

10.2.2 LCD

1) Auto Color Test
   Red -> Green -> Blue -> Balck -> White To exit test, press the right arrow key.
2) Color Table Test : display the RGB table

10.2.3 LED

1) Backlight Test
   This controls brightness of Backlight. When entering into the menu, the present backlight-value in the phone is displayed. Use Left/Right key to adjust the level of brightness.
2) Keypad Light Test
   This controls brightness of keypad light. When entering into the menu, the present keypad light-value in the phone is displayed. Use Left/Right key to adjust the level of brightness of keypad.
3) Blinking Test
   Keypad & LCD Backlight blinking test.

10.2.4 Vibrator

This menu is to test the vibration mode.

10.2.5 Sound

1) Ringtone Test
   This menu is test ring tone.
2) Audio Calibration
   This menu is to test db value of each volume level
3) Vocoder Calibration
   This menu is to test db value of each frequency of codec.

4) Echo Cancelation
This menu is to test echo cancellation parameter of codec.

5) Sound Calibration
This menu is to test volume gain of codec.

6) Loopback Test
This menu is to test the vibration mode.

7) AES/ACS Tunning
This menu is to test acoustic echo cancellation/suppression.

10.2.6 Camera

Camera application will be launched.

10.2.7 Keypad

This menu is to test all keys.

10.2.8 MP Msg Viewer

This menu is to display messages from MP

10.2.9 RTC Test

This menu is to display current time.

10.3 Factory Reset

This menu is to restore factory setting value.

10.4 MTC

Not to use.

10.5 Save Log

To save the latest log messages.

In Main view

Options

Set AP Debugmode On : UART switch is changed to AP / MP side

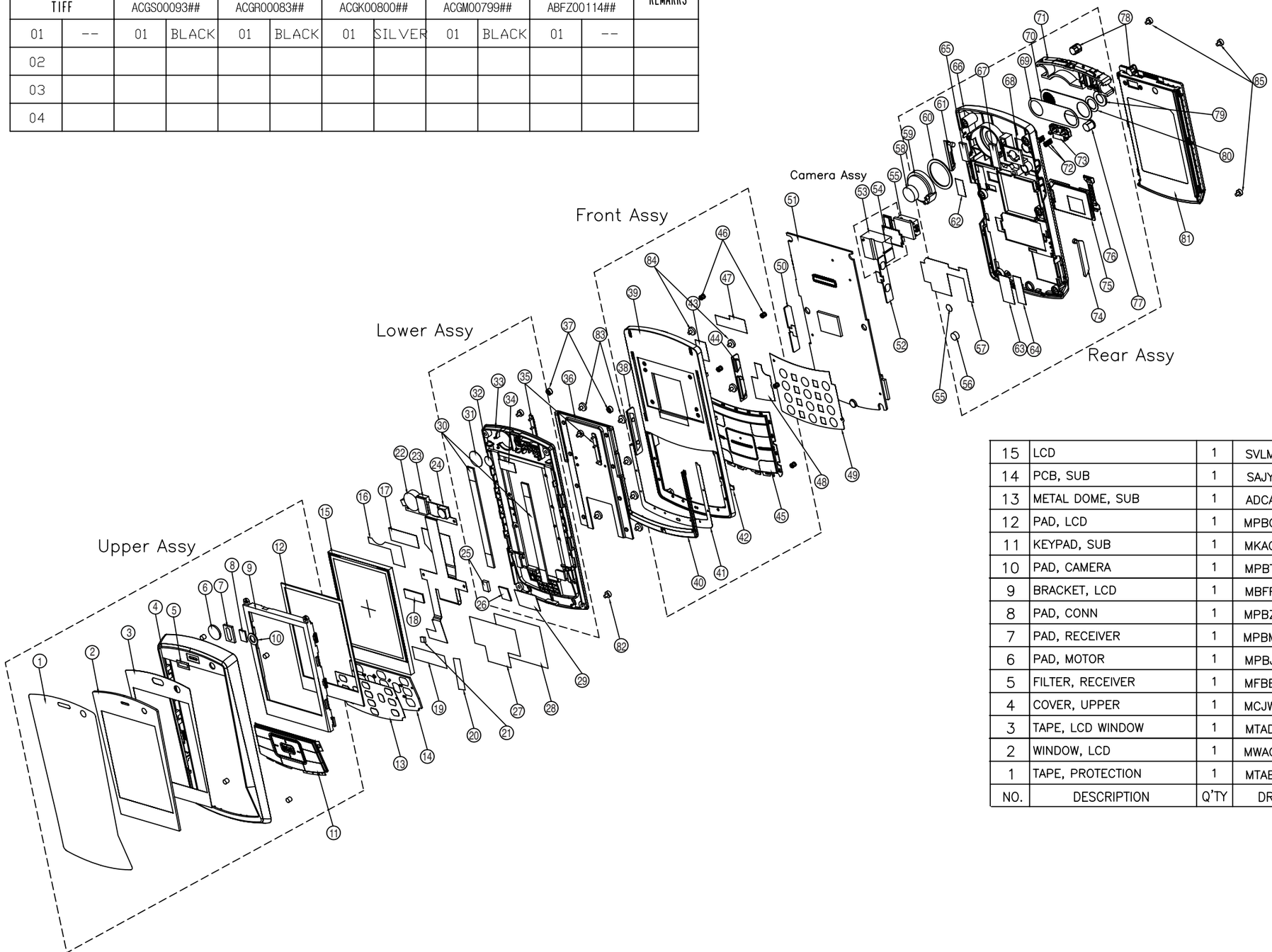
Set MP Debugmode On : not to use.

11. EXPLODED VIEW & REPLACEMENT PART LIST

11.1 EXPLODED VIEW

ASS'Y

PRODUCT TIFF		UPPER ASSY ACGS00093##		LOWER ASSY ACGR00083##		FRONT ASSY ACGK00800##		REAR ASSY ACGM00799##		CAMERA ASSY ABFZ00114##		REMARKS
01	--	01	BLACK	01	BLACK	01	SILVER	01	BLACK	01	--	
02												
03												
04												



NO.	DESCRIPTION	Q'TY	DRAWING NO.	REMARK
15	LCD	1	SVLM0020701	
14	PCB, SUB	1	SAJY0022201	
13	METAL DOME, SUB	1	ADCA0062701	
12	PAD, LCD	1	MPBG0056301	
11	KEYPAD, SUB	1	MKAC0009501	
10	PAD, CAMERA	1	MPBT0037901	
9	BRACKET, LCD	1	MBFF0011801	
8	PAD, CONN	1	MPBZ0172101	
7	PAD, RECEIVER	1	MPBM0017401	
6	PAD, MOTOR	1	MPBJ0040701	
5	FILTER, RECEIVER	1	MFBB0020401	
4	COVER, UPPER	1	MCJW0009801	
3	TAPE, LCD WINDOW	1	MTAD0064501	
2	WINDOW, LCD	1	MWAC0072201	
1	TAPE, PROTECTION	1	MTAB0170401	

58	PAD, SPEAKER	1	MPBN0038201	
57	TAPE, GASKET SHIELD	1	MGAE0000401	
56	PAD,MIC	1	MPBH0030201	
55	A/S LABEL	1	MLAB0001102	
54	TAPE, CAMERA BRACKET	1	MTAZ0189701	
53	BRACKET, CAMERA	1	MBFP0006501	
52	FPCB, POWER KEY	1		
51	PCB, MAIN	1	SAFB0071301	
50	FPCB, VOLUME KEY	1		
49	METAL DOME, MAIN	1	ADCA0062801	
48	INSULATOR	1	MIDZ0130601	
47	INSULATOR	1	MIDZ0130501	
46	INSERT	6		
45	KEYPAD, MAIN	1	MKAZ0033201	
44	SIDEKEY, POWER	1	MBJC0020501	
43	INSULATOR	1	MIDZ0130401	
42	PAD, MIC	1	MPBH0027601	
41	TAPE, DECO FRONT	1	MTAA0131301	
40	DECO, FRONT	1	MDAG0023701	
39	COVER, FRONT	1	MCJK0064501	
38	SIDEKEY, VOLUME	1	MBJN0010101	
37	CAP, SCREW	2	MCCH0093901	
36	HINGE	1	ARDY0001601	
35	DECO, LOWER	2	MTAZ0181101	
34	TAPE, CAMERA	1	ABCD000000	
33	COVER, LOWER	1	MCJV0008401	
32	TAPE, RECEIVER	1	MTAZ0181201	
31	TAPE, MOTOR	1	MTAF0010701	
30	PAD, LCD	2	MPBG0056401	
29	TAPE	1	MTAZ0181301	
28	INSULATOR	1	MIDZ0135601	
27	TAPE, GASKET SHIELD	1	MGAE0000301	
26	PAD,CONN	1	MPBU0000501	
25	PAD	1	MPBZ0172201	
24	VGA CAMERA	1	SVCY0014001	
23	RECEIVER	1	SURY0012801	
22	MOTOR	1	SJMY0006508	
21	GASKET SHIELD FORM	1	MGAD0139601	
20	TAPE, GASKET SHIELD	1	MGAE0000201	
19	INSULATOR	1	MIDZ0130801	
18	PAD	1	MIDZ0130701	
17	PAD, CONN	1	MPBF0021901	
16	INSULATOR	1	MPBZ0183901	

85	SCREW MACHINE, BIND	6	GMEY0011201	
84	SCREW MACHINE, BIND	4	GMZZ0022101	
83	SCREW MACHINE, BIND	8	MTAZ0181001	
82	SCREW MACHINE, BIND	4	GMEY0011201	
81	BATTERY	1		
80	TAPE, CAMERA WINDOW	1	MTAZ0181001	
79	WINDOW, CAMERA	1	MWAE0020901	
78	CAP, REAR	1	MCCH0094001	
77	CAP, M/S	1	MCCF0041201	
76	SIM LOCKER	1	MLEY0000801	
75	SIM BRAKCET	1	MHGB0001801	
74	CAP, T FLASH	1	MCCG0006801	
73	LOCKER, BATTERY	1	MLEA0035001	
72	SPRING, BATTERY	1	MSDB0003901	
71	INTENNA	1	SNGF0024701	
70	DECO, CAMERA	1	MDAD0026001	
69	TAPE, DECO	1	MTAA0131201	
68	PAD CAMERA	1	MPBT0037801	
67	GASKET SHIELD FORM	1	MGAD0140101	
66	COVER, REAR	1	MCJN0058801	
65	PAD	1	MPBL0005201	
64	TAPE, GASKET SHIELD	1	MGAE0000501	
63	INSULATOR	1	MIDZ0131101	
62	INSULATOR	1	MIDZ0131001	
61	CAP, MMI	1	MCCC0040001	
60	PAD, SPEAKER	1	MPBN0041401	
59	SPEAKER	1	SUSY0022601	

11.2 Replacement Parts <Mechanic component>

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No	Part Name	Part Number	Spec	Color	Remark
1		IMT,FOLDER	TIFF0011101			
2	AAAY00	ADDITION	AAAY0123901		Metal Black	
3	MCCZ00	CAP	MCCZ0021601	BOX, TW, , , , ,	Without Color	
3	MCJZ00	COVER	MCJZ0046701	BOX, TW, , , , ,	Without Color	62
3	MLAC00	LABEL,BARCODE	MLAC0004501	Export(105*40)	Without Color	
3	MLAJ00	LABEL,MASTER BOX	MLAJ0004401	LABEL,MASTER BOX(for C1300i NEW_CGR)	Without Color	
3	MPBZ00	PAD	MPBZ0155609	BOX, TW, , , , ,	Without Color	
3	MPCY00	PALLET	MPCY0012403	COMPLEX, (empty), , , , ,	DARK BLUE	
2	APEY00	PHONE	APEY0241401		Metal Black	
3	ACGM00	COVER ASSY,REAR	ACGM0079901		Black	
4	MCCC00	CAP,EARPHONE JACK	MCCC0040001	COMPLEX, (empty), , , , ,	Black	61
4	MCCF00	CAP,MOBILE SWITCH	MCCF0041201	MOLD, Urethane Rubber S190A, , , , ,	Black	77
4	MCCG00	CAP,MULTIMEDIA CARD	MCCG0006801	COMPLEX, (empty), , , , ,	Black	74
4	MCJN00	COVER,REAR	MCJN0058801	MOLD, PC LUPOY SC-1004ML, , , , ,	Black	66
4	MDAD00	DECO,CAMERA	MDAD0026001	ELECTROFORMING, Ni, , , , ,	Black	70
4	MGAD00	GASKET,SHIELD FORM	MGAD0140101	COMPLEX, (empty), , , , ,	Without Color	67
4	MGAE00	GASKET,DUST	MGAE0000401	COMPLEX, (empty), , , , ,	Without Color	57
4	MGAE01	GASKET,DUST	MGAE0000501	COMPLEX, (empty), , , , ,	Without Color	64
4	MHGB00	HOLDER,CARD	MHGB0001801	PRESS, STS, 0.2T, , , ,	Without Color	75
4	MIDZ00	INSULATOR	MIDZ0131001	COMPLEX, (empty), , , , ,	Without Color	
4	MIDZ01	INSULATOR	MIDZ0131101	COMPLEX, (empty), , , , ,	Without Color	63
4	MLAB00	LABEL,A/S	MLAB0001102	C2000 USASV DIA 4.0	White	55
4	MLAN00	LABEL,QUALCOMM	MLAN0000603	White,95C	Transparent	
4	MLEA00	LOCKER,BATTERY	MLEA0035001	MOLD, PC LUPOY SC-1004ML, , , , ,	Black	73
4	MLEY00	LOCKER	MLEY0000801	SIM LOCKER	Silver	76
4	MPBH00	PAD,MIKE	MPBH0030201	COMPLEX, (empty), , , , ,	Without Color	56
4	MPBL00	PAD,MSM	MPBL0005201	COMPLEX, (empty), , , , ,	Without Color	65
4	MPBN00	PAD,SPEAKER	MPBN0038201	COMPLEX, (empty), , , , ,	Without Color	58
4	MPBN01	PAD,SPEAKER	MPBN0041401	COMPLEX, (empty), , , , ,	Without Color	60
4	MPBT00	PAD,CAMERA	MPBT0037801	COMPLEX, (empty), , , , ,	Without Color	68
4	MSDB00	SPRING,COIL	MSDB0003901	CUTTING, BeCu, , , , ,	Silver	72
4	MTAA00	TAPE,DECO	MTAA0131201	COMPLEX, (empty), , , , ,	Without Color	69
4	MTAB00	TAPE,PROTECTION	MTAB0170801	COMPLEX, (empty), , , , ,	Without Color	

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No	Part Name	Part Number	Spec	Color	Remark
4	MTAZ00	TAPE	MTAZ0181001	COMPLEX, (empty), , , , ,	Without Color	80,83
4	MWAE00	WINDOW,CAMERA	MWAE0020901	CUTTING, NS, , , , ,	Black	79
5	MBJC00	BUTTON,FUNCTION	MBJC0020501	COMPLEX, (empty), , 51.9, 104, 12.2,	Black	44
5	MBJN00	BUTTON,VOLUME	MBJN0010101	COMPLEX, (empty), , 51.9, 104, 12.2,	Black	38
5	MCJK00	COVER,FRONT	MCJK0064501	MOLD, PC LUPOY SC-1004ML, , 51.9, 104, 12.2,	Black	39
6	MICE00	INSERT,NUT	MICE0000801	EXTRUSION, LDPE, , , , ,	Gold	
5	MDAG00	DECO,FRONT	MDAG0023701	MOLD, POM TX-31, , 51.9, 104, 12.2,	Black	40
5	MIDZ00	INSULATOR	MIDZ0130401	COMPLEX, (empty), , , , ,	Without Color	43
5	MIDZ01	INSULATOR	MIDZ0130501	COMPLEX, (empty), , , , ,	Without Color	47
5	MIDZ02	INSULATOR	MIDZ0130601	COMPLEX, (empty), , , , ,	Without Color	48
5	MPBH00	PAD,MIKE	MPBH0027601	COMPLEX, (empty), , , , ,	Without Color	42
5	MTAA00	TAPE,DECO	MTAA0131301	COMPLEX, (empty), , , , ,	Without Color	41
5	MTAB00	TAPE,PROTECTION	MTAB0148801	COMPLEX, (empty), , , , ,	Without Color	
5	MTAB01	TAPE,PROTECTION	MTAB0170201	COMPLEX, (empty), , , , ,	Without Color	
4	ACGR00	COVER ASSY,SLIDE(LOWER)	ACGR0008301		Black	
5	MCJV00	COVER,SLIDE(LOWER)	MCJV0008401	MOLD, PC LUPOY SC-1004ML, , 51.9, 104, 7.6,	Black	33
5	MDAY00	DECO	MDAY0032901	MOLD, POM TX-31, , 51.9, 104, 12.2,	Black	
5	MMAA00	MAGNET,SWITCH	MMAA0000901	G7000 12x2x0.7t	Metal Silver	
5	MPBG00	PAD,LCD	MPBG0056401	COMPLEX, (empty), , , , ,	Without Color	30
5	MPBU00	PAD,CONNECTOR	MPBU0000501	COMPLEX, (empty), , , , ,	Without Color	26
5	MTAF00	TAPE,MOTOR	MTAF0010701	COMPLEX, (empty), , , , ,	Without Color	31
5	MTAZ00	TAPE	MTAZ0181101	COMPLEX, (empty), , , , ,	Without Color	35
5	MTAZ01	TAPE	MTAZ0181201	COMPLEX, (empty), , , , ,	Without Color	32
5	MTAZ02	TAPE	MTAZ0181301	COMPLEX, (empty), , , , ,	Without Color	29
4	ACGS00	COVER ASSY,SLIDE(UPPER)	ACGS0009301		Black	
5	MBFF00	BRACKET,LCD	MBFF0011801	CASTING, Al Alloy, , , , ,	Black	9
5	MCJW00	COVER,SLIDE(UPPER)	MCJW0009801	CASTING, Al Alloy, , 51.9, 104, 7.6,	Black	4
6	MICC00	INSERT,FRONT(UPPER)	MICC0010001	D2.2 L2.0 KURL 45	Gold	
5	MFBB00	FILTER,RECEIVER	MFBB0020401	COMPLEX, (empty), , , , ,	Without Color	5
5	MKAC00	KEYPAD,FUNCTION	MKAC0009501	MOLD, ABS MP-220, , 51.9, 104, 7.6,	Black	11
5	MPBG00	PAD,LCD	MPBG0056301	COMPLEX, (empty), , , , ,	Without Color	12
5	MPBJ00	PAD,MOTOR	MPBJ0040701	COMPLEX, (empty), , , , ,	Without Color	6
5	MPBM00	PAD,RECEIVER	MPBM0017401	COMPLEX, (empty), , , , ,	Without Color	7
5	MPBT00	PAD,CAMERA	MPBT0037901	COMPLEX, (empty), , , , ,	Without Color	10
5	MPBZ00	PAD	MPBZ0172101	COMPLEX, (empty), , , , ,	Without Color	8
5	MTAB00	TAPE,PROTECTION	MTAB0153501	COMPLEX, (empty), , , , ,	Without Color	

Level	Location No	Part Name	Part Number	Spec	Color	Remark
5	MTAD00	TAPE,WINDOW	MTAD0064501	COMPLEX, (empty), , , , ,	Without Color	3
5	MWAC00	WINDOW,LCD	MWAC0072201	CUTTING, PMMA MR 200, , 51.9, 104, 12.2,	Black	2
4	ARDY00	RAIL ASSY,SLIDE	ARDY0001601		Black	36
4	GMEY00	SCREW MACHINE,BIND	GMEY0011201	1.4 mm,3 mm,MSWR3(BK) ,N ,+ ,NYLOK	Without Color	82,85
4	GMZZ00	SCREW MACHINE	GMZZ0022101	1.4 mm,1.7 mm,MSWR3(BK) ,A ,+ ,- ,	Without Color	84
4	GMZZ01	SCREW MACHINE	GMZZ0020501	3.5 mm,1.5 mm,SWCH18A ,A ,+ ,- ,	Black	
4	MCCH00	CAP,SCREW	MCCH0093901	MOLD, Urethane Rubber S190A, , , , ,	Black	37
4	MGAD00	GASKET,SHIELD FORM	MGAD0139601	COMPLEX, (empty), , , , ,	Without Color	21
4	MGAE00	GASKET,DUST	MGAE0000101	COMPLEX, (empty), , , , ,	Without Color	
4	MGAE01	GASKET,DUST	MGAE0000201	COMPLEX, (empty), , , , ,	Without Color	20
4	MGAE02	GASKET,DUST	MGAE0000301	COMPLEX, (empty), , , , ,	Without Color	27
4	MIDZ00	INSULATOR	MIDZ0130701	COMPLEX, (empty), , , , ,	Without Color	18
4	MIDZ01	INSULATOR	MIDZ0130801	COMPLEX, (empty), , , , ,	Without Color	19
4	MIDZ02	INSULATOR	MIDZ0135601	COMPLEX, (empty), , , , ,	Without Color	28
4	MIDZ03	INSULATOR	MIDZ0143101	COMPLEX, (empty), , , , ,	Without Color	
4	MKAZ00	KEYPAD	MKAZ0033201	MOLD, ABS MP-220, , , , ,	Black	45
4	MLAZ00	LABEL	MLAZ0038303	PRINTING, (empty), , , , ,	White	
4	MPBF00	PAD,FLEXIBLE PCB	MPBF0021901	COMPLEX, (empty), , , , ,	Without Color	17
4	MPBZ00	PAD	MPBZ0172201	COMPLEX, (empty), , , , ,	Without Color	25
4	MPBZ01	PAD	MPBZ0183901	COMPLEX, (empty), , , , ,	Without Color	16
4	MTAB00	TAPE,PROTECTION	MTAB0170401	COMPLEX, (empty), , , , ,	Without Color	1
4	MTAB01	TAPE,PROTECTION	MTAB0176601	COMPLEX, (empty), , , , ,	Without Color	
7	MBFP00	BRACKET,CAMERA	MBFP0006501	MOLD, PC LUPOY SC-1004ML, , , , ,	Black	53
7	MTAK00	TAPE,CAMERA	MTAK0000701	COMPLEX, (empty), , , , ,	Without Color	
7	MTAZ00	TAPE	MTAZ0189701	COMPLEX, (empty), , , , ,	Without Color	54
5	MLAZ00	LABEL	MLAZ0038301	PID Label 4 Array	Without Color	

11.2 Replacement Parts <Main component>

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No	Part Name	Part Number	Spec	Color	Remark
4	SNGF00	ANTENNA,GSM,FIXED	SNGF0024701	3.0 ,-2 dBd, ,EGSM+DCS+PCS+W-BAND I, INTERNAL ,; ,QUAD ,-2.0 ,50 ,3.0		71
4	SUSY00	SPEAKER	SUSY0022601	PIN ,8 ohm,90 dB,17 mm,Spring Contact Type		59
3	ACGQ00	COVER ASSY,SLIDE	ACGQ0013301		Black	
4	ACGK00	COVER ASSY,FRONT	ACGK0080001		Black	
4	SACY00	PCB ASSY,FLEXIBLE	SACY0053101	LCD FPCB		
5	SACB00	PCB ASSY,FLEXIBLE,INSERT	SACB0035701			
5	SACE00	PCB ASSY,FLEXIBLE,SMT	SACE0048001			
6	SACC00	PCB ASSY,FLEXIBLE,SMT BOTTOM	SACC0028501			
7	CN100	CONNECTOR,BOARD TO BOARD	ENBY0019501	20 PIN,.4 mm,ETC , ,H=1.5, Socket		
6	SACD00	PCB ASSY,FLEXIBLE,SMT TOP	SACD0039101			
7	C100	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	C101	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
7	C102	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	CN101	CONNECTOR,BOARD TO BOARD	ENBY0035901	40 PIN,0.4 mm,ETC , ,H=1.0, Plug		
7	CN102	CONNECTOR,BOARD TO BOARD	ENBY0022901	70 PIN,0.4 mm,ETC , ,H=0.9, Plug		
7	D100	DIODE,SWITCHING	EDSY0011901	EMD2 ,30 V,1 A,R/TP ,VF=1.5V(IF=200mA) , IR=30uA(VR=10V)		
7	FB100	FILTER,BEAD,CHIP	SFBH0000903	600 ohm,1005 ,		
7	FB101	FILTER,BEAD,CHIP	SFBH0000903	600 ohm,1005 ,		
7	L100	INDUCTOR,CHIP	ELCH0005007	56 nH,J ,1005 ,R/TP ,		
7	R100	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	R101	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	R104	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	VA100	VARISTOR	SEVY0003801	18 V, ,SMD ,		
7	VA101	VARISTOR	SEVY0003801	18 V, ,SMD ,		
6	SPCY00	PCB,FLEXIBLE	SPCY0072601	POLYI ,.4 mm,MULTI-4 , SLIDE-FPCB		
4	SAJY00	PCB ASSY,SUB	SAJY0022201			14
5	SAJB00	PCB ASSY,SUB,INSERT	SAJB0010801			
6	ADCA00	DOME ASSY,METAL	ADCA0062701		Without Color	13
5	SAJE00	PCB ASSY,SUB,SMT	SAJE0016601			

Level	Location No	Part Name	Part Number	Spec	Color	Remark
6	SAJC00	PCB ASSY,SUB,SMT BOTTOM	SAJC0014901			
7	C100	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C101	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C102	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	C103	CAP,CERAMIC,CHIP	ECCH0006201	4.7 uF,6.3V ,K ,X5R ,TC ,1608 ,R/TP		
7	C104	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
7	CN100	CONNECTOR,FFC/FPC	ENQY0010901	35 PIN,0.3 mm,ETC , ,H=1.2		
7	CN101	CONNECTOR,BOARD TO BOARD	ENBY0036001	40 PIN,0.4 mm,ETC , ,H=1.0, Socket		
7	D100	DIODE,TVS	EDTY0008607	SC70-6L ,6 V,200 W,R/TP ,PB-FREE		
7	D101	DIODE,TVS	EDTY0008607	SC70-6L ,6 V,200 W,R/TP ,PB-FREE		
7	D102	DIODE,TVS	EDTY0008607	SC70-6L ,6 V,200 W,R/TP ,PB-FREE		
7	D103	DIODE,TVS	EDTY0008607	SC70-6L ,6 V,200 W,R/TP ,PB-FREE		
7	D104	DIODE,TVS	EDTY0008607	SC70-6L ,6 V,200 W,R/TP ,PB-FREE		
7	R101	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R102	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R103	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R104	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
7	R106	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
7	R107	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
7	R111	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
7	R112	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
7	R115	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
7	U100	IC	EUSY0337001	TDFN33 ,12 PIN,R/TP ,3x3x1.0		
7	VA101	DIODE,TVS	EDTY0009401	VMN2 ,5 V,10 W,R/TP ,1.0*0.6*0.4 ,; , ,7.82V , , ,100mW ,[empty] ,[empty] ,2P ,1		
7	VA102	DIODE,TVS	EDTY0009401	VMN2 ,5 V,10 W,R/TP ,1.0*0.6*0.4 ,; , ,7.82V , , ,100mW ,[empty] ,[empty] ,2P ,1		
7	VA103	DIODE,TVS	EDTY0009401	VMN2 ,5 V,10 W,R/TP ,1.0*0.6*0.4 ,; , ,7.82V , , ,100mW ,[empty] ,[empty] ,2P ,1		
7	VA105	DIODE,TVS	EDTY0009401	VMN2 ,5 V,10 W,R/TP ,1.0*0.6*0.4 ,; , ,7.82V , , ,100mW ,[empty] ,[empty] ,2P ,1		
7	VA107	DIODE,TVS	EDTY0009401	VMN2 ,5 V,10 W,R/TP ,1.0*0.6*0.4 ,; , ,7.82V , , ,100mW ,[empty] ,[empty] ,2P ,1		
7	ZD100	DIODE,TVS	EDTY0009401	VMN2 ,5 V,10 W,R/TP ,1.0*0.6*0.4 ,; , ,7.82V , , ,100mW ,[empty] ,[empty] ,2P ,1		
7	ZD101	DIODE,TVS	EDTY0009401	VMN2 ,5 V,10 W,R/TP ,1.0*0.6*0.4 ,; , ,7.82V , , ,100mW ,[empty] ,[empty] ,2P ,1		
6	SAJD00	PCB ASSY,SUB,SMT TOP	SAJD0017001			
7	LD100	DIODE,LED,CHIP	EDLH0012501	Snow White ,1608 ,R/TP ,color concept		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No	Part Name	Part Number	Spec	Color	Remark
7	LD101	DIODE,LED,CHIP	EDLH0012501	Snow White ,1608 ,R/TP ,color concept		
7	LD102	DIODE,LED,CHIP	EDLH0012501	Snow White ,1608 ,R/TP ,color concept		
7	LD103	DIODE,LED,CHIP	EDLH0012501	Snow White ,1608 ,R/TP ,color concept		
7	LD104	DIODE,LED,CHIP	EDLH0012501	Snow White ,1608 ,R/TP ,color concept		
7	LD105	DIODE,LED,CHIP	EDLH0012501	Snow White ,1608 ,R/TP ,color concept		
7	LD106	DIODE,LED,CHIP	EDLH0012501	Snow White ,1608 ,R/TP ,color concept		
7	LD107	DIODE,LED,CHIP	EDLH0012501	Snow White ,1608 ,R/TP ,color concept		
7	LD108	DIODE,LED,CHIP	EDLH0012501	Snow White ,1608 ,R/TP ,color concept		
7	R108	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
7	R109	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
7	R110	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
7	R113	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
7	R114	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
7	VA100	VARISTOR	SEVY0000702	14 V,10% ,SMD ,		
7	VA104	DIODE,TVS	EDTY0009401	VMN2 ,5 V,10 W,R/TP ,1.0*0.6*0.4 ,; , ,7.82V , , ,100mW ,[empty] ,[empty] ,2P ,1		
7	VA106	DIODE,TVS	EDTY0009401	VMN2 ,5 V,10 W,R/TP ,1.0*0.6*0.4 ,; , ,7.82V , , ,100mW ,[empty] ,[empty] ,2P ,1		
6	SPJY00	PCB,SUB	SPJY0025701	FR-4 ,0.8 mm,SBL 6 ,KS10		
4	SJMY00	VIBRATOR,MOTOR	SJMY0006508	3 V,.08 A,10*3.45 ,17mm , ,3V , , ,12500 , , , ,38		22
4	SURY00	RECEIVER	SURY0012801			23
4	SVCY00	CAMERA	SVCY0014001	CMOS ,VGA ,5.5x11.4x3.2t, Magna 1/7.4"		24
4	SVLM00	LCD MODULE	SVLM0020701	MAIN ,2.4" 240*320 ,42.88*60.65 ,262k ,TFT ,TM ,BD663474 ,		15
3	GMEY00	SCREW MACHINE,BIND	GMEY0011201	1.4 mm,3 mm,MSWR3(BK) ,N ,+ ,NYLOK	Without Color	
3	MCCH00	CAP,SCREW	MCCH0094001	COMPLEX, (empty), , , , ,	Black	78
3	MCCH01	CAP,SCREW	MCCH0097701	MOLD, Urethane Rubber S190A, , , , ,	Black	
3	MLAK00	LABEL,MODEL	MLAK0006901			
3	SAFY00	PCB ASSY,MAIN	SAFY0184101			
4	SAFB00	PCB ASSY,MAIN,INSERT	SAFB0071301			51
5	ACMY00	CAMERA ASSY	ACMY0005701		Black	
6	ABFZ00	BRACKET ASSY	ABFZ0011401		Black	
6	SVCY00	CAMERA	SVCY0014101	CMOS ,MEGA ,2M AF(FPCB,Micron 1/4" SOC2020,90')		
5	ADCA00	DOME ASSY,METAL	ADCA0062801		Without Color	49
5	MAAA00	ABSORBER,ELECTROMAGNETIC WAVE	MAAA0000101	COMPLEX, (empty), , , , ,	Without Color	
5	SPKY00	PCB,SIDEKEY	SPKY0034201	POLYI ,0.2 mm,DOUBLE ,POWER_SIDE_KEY		
5	SPKY01	PCB,SIDEKEY	SPKY0034401	POLYI ,0.2 mm,DOUBLE ,SIDE KEY(Volume)		
4	SAFF00	PCB ASSY,MAIN,SMT	SAFF0105101			

Level	Location No	Part Name	Part Number	Spec	Color	Remark
5	SAFC00	PCB ASSY,MAIN,SMT BOTTOM	SAFC0084601			
6	ANT400	ANTENNA,GSM,FIXED	SNGF0023801	3.0 ,-2.0 dBd,, ,Chip, bluetooth ,; ,SINGLE ,-2.0 ,50 ,3.0		
6	BAT700	BATTERY,CELL,LITHIUM	SBCL0001305	3 V,1 mAh,COIN ,SMT Temp.260 degree. PB-Free B/B		
6	C100	CAP,CERAMIC,CHIP	ECCH0000275	0.33 uF,16V,Z,Y5V,HD,1608,R/TP		
6	C101	CAP,CERAMIC,CHIP	ECCH0000129	120 pF,50V,J,NP0,TC,1005,R/TP		
6	C102	CAP,CERAMIC,CHIP	ECCH0000129	120 pF,50V,J,NP0,TC,1005,R/TP		
6	C103	CAP,CERAMIC,CHIP	ECCH0000275	0.33 uF,16V,Z,Y5V,HD,1608,R/TP		
6	C104	CAP,CERAMIC,CHIP	ECCH0000275	0.33 uF,16V,Z,Y5V,HD,1608,R/TP		
6	C105	CAP,CERAMIC,CHIP	ECCH0000129	120 pF,50V,J,NP0,TC,1005,R/TP		
6	C106	CAP,CERAMIC,CHIP	ECCH0000129	120 pF,50V,J,NP0,TC,1005,R/TP		
6	C107	CAP,CERAMIC,CHIP	ECCH0000275	0.33 uF,16V,Z,Y5V,HD,1608,R/TP		
6	C108	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C109	CAP,CERAMIC,CHIP	ECCH0000129	120 pF,50V,J,NP0,TC,1005,R/TP		
6	C110	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C111	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C112	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C113	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C114	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C115	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C116	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C117	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C118	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C119	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C120	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C121	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C122	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C123	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C124	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C125	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C126	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C127	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C128	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C129	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C130	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C131	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C132	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No	Part Name	Part Number	Spec	Color	Remark
6	C133	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C134	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C135	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C136	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C137	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C138	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C139	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C140	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C141	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C142	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C143	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C144	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C145	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C146	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C147	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C148	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C149	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C150	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C151	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C153	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C154	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C200	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C201	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C202	CAP,CERAMIC,CHIP	ECCH0000157	15 nF,16V,K,X7R,HD,1005,R/TP		
6	C203	CAP,CERAMIC,CHIP	ECCH0007901	10 uF,4V ,M ,X5R ,TC ,1608 ,R/TP		
6	C204	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C205	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C206	CAP,CERAMIC,CHIP	ECCH0000157	15 nF,16V,K,X7R,HD,1005,R/TP		
6	C207	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C208	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C209	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C219	CAP,CERAMIC,CHIP	ECCH0007901	10 uF,4V ,M ,X5R ,TC ,1608 ,R/TP		
6	C220	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C221	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C222	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C224	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C225	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		

Level	Location No	Part Name	Part Number	Spec	Color	Remark
6	C226	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C227	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C228	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C229	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C230	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C232	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C233	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C234	CAP,CHIP,MAKER	ECZH0026301	4.7 uF,6.3V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C235	CAP,CHIP,MAKER	ECZH0026301	4.7 uF,6.3V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C236	CAP,CHIP,MAKER	ECZH0026301	4.7 uF,6.3V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C240	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C241	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C242	CAP,TANTAL,CHIP	ECTH0004402	33 uF,6.3V ,M ,L_ESR ,2012 ,R/TP		
6	C243	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C244	CAP,TANTAL,CHIP	ECTH0004402	33 uF,6.3V ,M ,L_ESR ,2012 ,R/TP		
6	C245	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C246	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C247	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C248	CAP,CHIP,MAKER	ECZH0003202	1 uF,6.3V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C249	CAP,CERAMIC,CHIP	ECCH0002002	47000 pF,10V ,K ,B ,HD ,1005 ,R/TP		
6	C250	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C251	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C252	CAP,CERAMIC,CHIP	ECCH0000120	39 pF,50V,J,NP0,TC,1005,R/TP		
6	C253	CAP,TANTAL,CHIP	ECTH0002002	33 uF,10V ,M ,L_ESR ,2012 ,R/TP ,; , ,[empty] ,[empty] , ,-55TO+125C , ,2.2X1.1X1.1MM ,[empty] ,[empty] ,[empty]		
6	C254	CAP,CHIP,MAKER	ECZH0003503	1 uF,25V ,K ,X5R ,HD ,1608 ,R/TP		
6	C255	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C256	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C257	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C258	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C259	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C260	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C262	CAP,CERAMIC,CHIP	ECCH0000165	68 nF,6.3V,K,X5R,HD,1005,R/TP		
6	C263	CAP,CERAMIC,CHIP	ECCH0005602	2.2 uF,16V ,K ,X5R ,HD ,1608 ,R/TP		
6	C264	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C265	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C266	CAP,CERAMIC,CHIP	ECCH0002004	0.22 uF,10V ,K ,B ,TC ,1005 ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No	Part Name	Part Number	Spec	Color	Remark
6	C267	CAP,CERAMIC,CHIP	ECCH0000165	68 nF,6.3V,K,X5R,HD,1005,R/TP		
6	C300	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C301	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C302	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C303	CAP,CHIP,MAKER	ECZH0001121	470 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C304	CAP,CHIP,MAKER	ECZH0001421	2.2 uF,6.3V ,K ,X5R ,HD ,1608 ,R/TP		
6	C305	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C306	CAP,CHIP,MAKER	ECZH0001121	470 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C307	CAP,CHIP,MAKER	ECZH0001421	2.2 uF,6.3V ,K ,X5R ,HD ,1608 ,R/TP		
6	C310	CAP,CERAMIC,CHIP	ECCH0007801	4.7 uF,10V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C311	CAP,CERAMIC,CHIP	ECCH0000393	22 uF,6.3V ,M ,X5R ,HD ,2012 ,R/TP		
6	C312	CAP,CERAMIC,CHIP	ECCH0007801	4.7 uF,10V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C313	CAP,CERAMIC,CHIP	ECCH0007801	4.7 uF,10V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C314	CAP,CERAMIC,CHIP	ECCH0000393	22 uF,6.3V ,M ,X5R ,HD ,2012 ,R/TP		
6	C317	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C318	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C319	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C321	CAP,CHIP,MAKER	ECZH0001421	2.2 uF,6.3V ,K ,X5R ,HD ,1608 ,R/TP		
6	C324	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C325	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C326	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C327	CAP,CHIP,MAKER	ECZH0001503	0.47 uF,10V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C328	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C329	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C330	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C331	CAP,CHIP,MAKER	ECZH0026301	4.7 uF,6.3V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C332	CAP,CHIP,MAKER	ECZH0001421	2.2 uF,6.3V ,K ,X5R ,HD ,1608 ,R/TP		
6	C334	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C337	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C338	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C339	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C340	CAP,CHIP,MAKER	ECZH0000816	12 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C341	CAP,CHIP,MAKER	ECZH0000816	12 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C342	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C400	CAP,TANTAL,CHIP	ECTH0002002	33 uF,10V ,M ,L_ESR ,2012 ,R/TP ,; , ,[empty] ,[empty] , ,-55TO+125C , ,2.2X1.1X1.1MM ,[empty] ,[empty] ,[empty]		
6	C401	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		

Level	Location No	Part Name	Part Number	Spec	Color	Remark
6	C402	CAP,CHIP,MAKER	ECZH0001215	1 uF,10V ,K ,X5R ,TC ,1005 ,R/TP		
6	C403	CAP,CHIP,MAKER	ECZH0001121	470 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C404	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C405	CAP,CHIP,MAKER	ECZH0001211	220 nF,10V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C406	CAP,CHIP,MAKER	ECZH0001211	220 nF,10V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C407	CAP,CHIP,MAKER	ECZH0001211	220 nF,10V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C408	CAP,CHIP,MAKER	ECZH0001211	220 nF,10V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C409	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C410	CAP,CHIP,MAKER	ECZH0001211	220 nF,10V ,Z ,Y5V ,HD ,1005 ,R/TP		
6	C411	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C412	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C416	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C417	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C421	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C422	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C500	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	C501	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C503	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C504	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C505	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C506	CAP,CHIP,MAKER	ECZH0000841	56 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C507	INDUCTOR,CHIP	ELCH0001033	1.5 nH,S ,1005 ,R/TP ,PBFREE		
6	C508	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C509	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C510	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C511	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C514	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C515	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C516	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C517	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C518	CAP,TANTAL,CHIP,MAKER	ECTZ0006002	4.7 uF,6.3V ,M ,L_ESR ,1608 ,R/TP		
6	C519	CAP,CERAMIC,CHIP	ECCH0000122	47 pF,50V,J,NP0,TC,1005,R/TP		
6	C520	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C521	CAP,CHIP,MAKER	ECZH0001122	680 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C522	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C523	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C524	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No	Part Name	Part Number	Spec	Color	Remark
6	C525	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C526	CAP,FILM,MPP	ECFD0000604	6.8 nF,16V ,J ,NI ,SMD ,2012 mm,R/TP		
6	C527	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C530	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C531	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C532	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C533	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C534	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C535	CAP,CERAMIC,CHIP	ECCH0000137	330 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C536	CAP,CHIP,MAKER	ECZH0000844	68 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C537	CAP,CERAMIC,CHIP	ECCH0000129	120 pF,50V,J,NP0,TC,1005,R/TP		
6	C538	CAP,FILM,MPP	ECFD0000703	3900 pF,16V ,J ,NI ,SMD ,2012 mm,R/TP		
6	C539	CAP,FILM,MPP	ECFD0000614	5.6 nF,16V ,J ,NI ,SMD ,2012 mm,R/TP		
6	C540	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C541	CAP,CERAMIC,CHIP	ECCH0000127	82 pF,50V,J,NP0,TC,1005,R/TP		
6	C542	CAP,CERAMIC,CHIP	ECCH0000138	390 pF,50V,K,X7R,HD,1005,R/TP		
6	C543	CAP,TANTAL,CHIP	ECTH0001704	22 uF,10V ,M ,L_ESR ,2012 ,R/TP ,; , ,[empty] ,[empty] , ,[empty] , ,2.2X1.25X1.2MM ,[empty] ,[empty] ,[empty]		
6	C544	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C545	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C546	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C547	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C548	CAP,TANTAL,CHIP,MAKER	ECTZ0006002	4.7 uF,6.3V ,M ,L_ESR ,1608 ,R/TP		
6	C549	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C550	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C551	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C552	CAP,CHIP,MAKER	ECZH0001106	4700 pF,25V ,K ,X7R ,HD ,1005 ,R/TP		
6	C553	CAP,TANTAL,CHIP,MAKER	ECTZ0006002	4.7 uF,6.3V ,M ,L_ESR ,1608 ,R/TP		
6	C554	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C555	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C556	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C557	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C559	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C560	INDUCTOR,CHIP	ELCH0005010	1.8 nH,S ,1005 ,R/TP ,		
6	C561	CAP,CERAMIC,CHIP	ECCH0000115	22 pF,50V,J,NP0,TC,1005,R/TP		
6	C562	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C563	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		

Level	Location No	Part Name	Part Number	Spec	Color	Remark
6	C566	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C567	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C568	CAP,TANTAL,CHIP	ECTH0001903	22 uF,6.3V ,M ,L_ESR ,1608 ,R/TP		
6	C570	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C571	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C572	CAP,CERAMIC,CHIP	ECCH0000145	1.5 nF,50V,K,X7R,HD,1005,R/TP		
6	C573	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C574	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C575	INDUCTOR,CHIP	ELCH0005010	1.8 nH,S ,1005 ,R/TP ,		
6	C580	RES,CHIP,MAKER	ERHZ0000483	47 ohm,1/16W ,J ,1005 ,R/TP		
6	C600	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C601	CAP,CERAMIC,CHIP	ECCH0003401	10 uF,6.3V ,Z ,Y5V ,HD ,2012 ,R/TP		
6	C602	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C603	CAP,CERAMIC,CHIP	ECCH0003401	10 uF,6.3V ,Z ,Y5V ,HD ,2012 ,R/TP		
6	C604	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C605	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C606	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C607	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C612	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C613	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C614	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C615	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C616	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C617	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C618	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C619	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C620	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C621	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C622	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C623	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C624	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C625	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C626	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C627	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C628	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C629	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C630	CAP,CERAMIC,CHIP	ECCH0000147	2.2 nF,50V,K,X7R,HD,1005,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No	Part Name	Part Number	Spec	Color	Remark
6	C631	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C632	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C633	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C634	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C635	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C636	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C637	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C638	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C639	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C640	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C641	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C642	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C643	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C644	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C645	CAP,CERAMIC,CHIP	ECCH0000161	33 nF,16V,K,X7R,HD,1005,R/TP		
6	C646	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C802	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	CN200	CONNECTOR,BOARD TO BOARD	ENBY0015601	34 PIN,0.4 mm,STRAIGHT ,AU ,0.9MM HEIGHT		
6	CN202	CONNECTOR,I/O	ENRY0006801	18 PIN,0.4 mm,ETC , , ,; ,18 ,0.40MM ,ANGLE ,RECEPTACLE ,SMD ,R/TP ,		
6	CN203	CONNECTOR,ETC	ENZY0017601	3 PIN,2.5 mm,ETC , ,H=2.5		
6	CN402	CONNECTOR,BOARD TO BOARD	ENBY0016701	20 PIN,0.4 mm,STRAIGHT ,AU ,0.9 STACKING,MALE		
6	D201	DIODE,TVS	EDTY0008601	SOD-323 ,6 V,400 W,R/TP ,PB-FREE		
6	D300	DIODE,TVS	EDTY0008607	SC70-6L ,6 V,200 W,R/TP ,PB-FREE		
6	D301	DIODE,TVS	EDTY0008607	SC70-6L ,6 V,200 W,R/TP ,PB-FREE		
6	D400	DIODE,TVS	EDTY0009401	VMN2 ,5 V,10 W,R/TP ,1.0*0.6*0.4 ,; , ,7.82V , , ,100mW ,[empty] ,[empty] ,2P ,1		
6	D401	DIODE,TVS	EDTY0009401	VMN2 ,5 V,10 W,R/TP ,1.0*0.6*0.4 ,; , ,7.82V , , ,100mW ,[empty] ,[empty] ,2P ,1		
6	D402	DIODE,TVS	EDTY0009401	VMN2 ,5 V,10 W,R/TP ,1.0*0.6*0.4 ,; , ,7.82V , , ,100mW ,[empty] ,[empty] ,2P ,1		
6	D700	DIODE,SWITCHING	EDSY0011901	EMD2 ,30 V,1 A,R/TP ,VF=1.5V(IF=200mA) , IR=30uA(VR=10V)		
6	FB245	FILTER,BEAD,CHIP	SFBH0009304	1500 ohm,1005 ,Chip bead ,; ,1500ohm ,1x0. ,[empty] ,R/TP		
6	FB500	FILTER,BEAD,CHIP	SFBH0000903	600 ohm,1005 ,		
6	FB501	FILTER,BEAD,CHIP	SFBH0000903	600 ohm,1005 ,		
6	FB502	FILTER,BEAD,CHIP	SFBH0000903	600 ohm,1005 ,		
6	FB503	FILTER,BEAD,CHIP	SFBH0002301	1000 ohm,1608 ,CHIP FERRITE BEAD BLM11		

Level	Location No	Part Name	Part Number	Spec	Color	Remark
6	FL400	FILTER,SAW	SFSY0027301	2450 MHz,2.0*1.5*1.0 ,SMD ,Pb-free_B/T_SAW		
6	FL500	FILTER,SEPERATOR	SFAY0007601	900.1800 ,1900.2100 , dB, dB, dB, dB,ETC ,GSM TRIPLE, WCDMA2100 Quad Band FEM, 6.5X4.8X1.5 Size		
6	J300	CONN,SOCKET	ENSY0001602	6 PIN,ETC ,5 IRECTIONAL ,2.54 mm,K(GC200)		
6	L300	INDUCTOR,SMD,POWER	ELCP0009401	4.7 uH,M ,2.8*2.6*1.0 ,R/TP ,		
6	L301	INDUCTOR,SMD,POWER	ELCP0009401	4.7 uH,M ,2.8*2.6*1.0 ,R/TP ,		
6	L302	INDUCTOR,CHIP	ELCH0001022	56 nH,J ,1005 ,R/TP ,Pb Free		
6	L500	INDUCTOR,CHIP	ELCH0001405	3.3 nH,S ,1005 ,R/TP ,PBFREE		
6	L501	INDUCTOR,CHIP	ELCH0003816	3.6 nH,S ,1005 ,R/TP ,		
6	L502	CAP,CHIP,MAKER	ECZH0000802	1 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	L503	INDUCTOR,CHIP	ELCH0010401	2.2 uH,M ,1005 ,R/TP ,		
6	L504	INDUCTOR,CHIP	ELCH0001022	56 nH,J ,1005 ,R/TP ,Pb Free		
6	L505	INDUCTOR,CHIP	ELCH0003816	3.6 nH,S ,1005 ,R/TP ,		
6	L506	INDUCTOR,CHIP	ELCH0010401	2.2 uH,M ,1005 ,R/TP ,		
6	L507	INDUCTOR,CHIP	ELCH0003814	5.1 nH,S ,1005 ,R/TP ,5.1nH,1005		
6	L508	INDUCTOR,CHIP	ELCH0003817	7.5 nH,J ,1005 ,R/TP ,		
6	L509	INDUCTOR,CHIP	ELCH0010401	2.2 uH,M ,1005 ,R/TP ,		
6	L510	INDUCTOR,CHIP	ELCH0001405	3.3 nH,S ,1005 ,R/TP ,PBFREE		
6	L511	INDUCTOR,CHIP	ELCH0003817	7.5 nH,J ,1005 ,R/TP ,		
6	L512	INDUCTOR,CHIP	ELCH0010401	2.2 uH,M ,1005 ,R/TP ,		
6	L513	INDUCTOR,CHIP	ELCH0003814	5.1 nH,S ,1005 ,R/TP ,5.1nH,1005		
6	L514	INDUCTOR,CHIP	ELCH0003817	7.5 nH,J ,1005 ,R/TP ,		
6	L515	INDUCTOR,CHIP	ELCH0001421	47 nH,J ,1005 ,R/TP ,PBFREE		
6	L516	INDUCTOR,CHIP	ELCH0001428	10 nH,J ,1005 ,R/TP ,		
6	L517	INDUCTOR,CHIP	ELCH0003818	9.1 nH,J ,1005 ,R/TP ,		
6	L518	INDUCTOR,CHIP	ELCH0001421	47 nH,J ,1005 ,R/TP ,PBFREE		
6	L519	INDUCTOR,CHIP	ELCH0003818	9.1 nH,J ,1005 ,R/TP ,		
6	L520	INDUCTOR,CHIP	ELCH0001428	10 nH,J ,1005 ,R/TP ,		
6	L521	INDUCTOR,CHIP	ELCH0001421	47 nH,J ,1005 ,R/TP ,PBFREE		
6	L522	INDUCTOR,CHIP	ELCH0001402	18 nH,J ,1005 ,R/TP ,Pb Free		
6	L523	INDUCTOR,CHIP	ELCH0001413	22 nH,J ,1005 ,R/TP ,PBFREE		
6	L524	INDUCTOR,CHIP	ELCH0001404	1.5 nH,S,1005,R/TP		
6	L525	INDUCTOR,CHIP	ELCH0005016	8.2 nH,J ,1005 ,R/TP ,		
6	L526	INDUCTOR,CHIP	ELCH0005012	3.9 nH,S ,1005 ,R/TP ,		
6	L527	CAP,CERAMIC,CHIP	ECCH0000701	1.2 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	L600	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	MIC200	MICROPHONE	SUMY0009203	UNIT ,42 dB,4*1.5 ,Reverse TYPE		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No	Part Name	Part Number	Spec	Color	Remark
6	Q700	TR,BJT,PNP	EQBP0009901	TSMT6 ,0.5 W,R/TP ,Vceo=-12V, Ic=-3A, hFE=270~680		
6	Q701	TR,FET,P-CHANNEL	EQFP0008601	DFN8 ,1.3 W,-20 V,-3.9 A,R/TP ,Intergrated power MOSFET with PNP Transistor		
6	R100	RES,CHIP,MAKER	ERHZ0000295	51 Kohm,1/16W ,F ,1005 ,R/TP		
6	R101	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R102	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R103	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R105	RES,CHIP,MAKER	ERHZ0000422	15 Kohm,1/16W ,J ,1005 ,R/TP		
6	R106	RES,CHIP,MAKER	ERHZ0000422	15 Kohm,1/16W ,J ,1005 ,R/TP		
6	R107	RES,CHIP,MAKER	ERHZ0000459	3 Kohm,1/16W ,J ,1005 ,R/TP		
6	R108	RES,CHIP,MAKER	ERHZ0000459	3 Kohm,1/16W ,J ,1005 ,R/TP		
6	R109	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R110	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R111	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R112	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R113	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R114	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R115	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R200	RES,CHIP,MAKER	ERHZ0000433	180 Kohm,1/16W ,J ,1005 ,R/TP		
6	R201	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R202	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R203	RES,CHIP,MAKER	ERHZ0000487	470 Kohm,1/16W ,J ,1005 ,R/TP		
6	R204	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R205	RES,CHIP,MAKER	ERHZ0000433	180 Kohm,1/16W ,J ,1005 ,R/TP		
6	R206	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R208	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R210	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R211	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R212	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R213	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R214	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R215	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R221	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R222	RES,CHIP,MAKER	ERHZ0000504	68 ohm,1/16W ,J ,1005 ,R/TP		
6	R223	RES,CHIP,MAKER	ERHZ0000504	68 ohm,1/16W ,J ,1005 ,R/TP		
6	R224	RES,CHIP,MAKER	ERHZ0000288	470 Kohm,1/16W ,F ,1005 ,R/TP		
6	R226	RES,CHIP,MAKER	ERHZ0000537	680000 ohm,1/16W ,F ,1005 ,R/TP		

Level	Location No	Part Name	Part Number	Spec	Color	Remark
6	R227	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R228	RES,CHIP	ERHY0011601	11 Kohm,1/16W ,F ,1005 ,R/TP		
6	R229	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP		
6	R230	RES,CHIP,MAKER	ERHZ0000507	68 Kohm,1/16W ,J ,1005 ,R/TP		
6	R231	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R232	RES,CHIP,MAKER	ERHZ0000507	68 Kohm,1/16W ,J ,1005 ,R/TP		
6	R233	RES,CHIP,MAKER	ERHZ0000203	10 Kohm,1/16W ,F ,1005 ,R/TP		
6	R300	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R303	RES,CHIP,MAKER	ERHZ0000287	47 Kohm,1/16W ,F ,1005 ,R/TP		
6	R305	RES,CHIP,MAKER	ERHZ0000441	22 ohm,1/16W ,J ,1005 ,R/TP		
6	R306	RES,CHIP,MAKER	ERHZ0000441	22 ohm,1/16W ,J ,1005 ,R/TP		
6	R307	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
6	R308	RES,CHIP,MAKER	ERHZ0000701	0 ohm,1/10W ,J ,1608 ,R/TP		
6	R309	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
6	R310	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
6	R311	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
6	R313	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
6	R314	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
6	R315	RES,CHIP,MAKER	ERHZ0000485	4700 ohm,1/16W ,J ,1005 ,R/TP		
6	R401	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R404	RES,CHIP	ERHY0000101	0 ohm,1/16W,F,1005,R/TP		
6	R410	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R420	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R421	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R500	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R501	RES,CHIP	ERHY0000253	4.3K ohm,1/16W,J,1005,R/TP		
6	R502	RES,CHIP,MAKER	ERHZ0000286	4700 ohm,1/16W ,F ,1005 ,R/TP		
6	R503	RES,CHIP,MAKER	ERHZ0003203	11.3 Kohm,1/16W ,F ,1005 ,R/TP		
6	R504	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R505	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R506	RES,CHIP	ERHY0000186	2.2 Kohm,1/16W ,F ,1005 ,R/TP		
6	R507	RES,CHIP,MAKER	ERHZ0000201	100 ohm,1/16W ,F ,1005 ,R/TP		
6	R508	RES,CHIP	ERHY0000101	0 ohm,1/16W,F,1005,R/TP		
6	R509	RES,CHIP,MAKER	ERHZ0000267	3300 ohm,1/16W ,F ,1005 ,R/TP		
6	R510	RES,CHIP,MAKER	ERHZ0000201	100 ohm,1/16W ,F ,1005 ,R/TP		
6	R511	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R512	RES,CHIP,MAKER	ERHZ0000307	6200 ohm,1/16W ,F ,1005 ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No	Part Name	Part Number	Spec	Color	Remark
6	R513	RES,CHIP,MAKER	ERHZ0000701	0 ohm,1/10W ,J ,1608 ,R/TP		
6	R514	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R515	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R516	RES,CHIP,MAKER	ERHZ0000419	15 ohm,1/16W ,J ,1005 ,R/TP		
6	R517	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R518	RES,CHIP,MAKER	ERHZ0000419	15 ohm,1/16W ,J ,1005 ,R/TP		
6	R519	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R520	RES,CHIP	ERHY0003501	220 ohm,1/16W ,J ,1005 ,R/TP		
6	R521	RES,CHIP	ERHY0003501	220 ohm,1/16W ,J ,1005 ,R/TP		
6	R522	RES,CHIP,MAKER	ERHZ0000531	270 ohm,1/16W ,J ,1005 ,R/TP		
6	R523	RES,CHIP,MAKER	ERHZ0000531	270 ohm,1/16W ,J ,1005 ,R/TP		
6	R524	RES,CHIP,MAKER	ERHZ0000490	51 ohm,1/16W ,J ,1005 ,R/TP		
6	R530	INDUCTOR,CHIP	ELCH0005012	3.9 nH,S ,1005 ,R/TP ,		
6	R531	RES,CHIP,MAKER	ERHZ0000490	51 ohm,1/16W ,J ,1005 ,R/TP		
6	R600	RES,CHIP,MAKER	ERHZ0000407	1000 Kohm,1/16W ,J ,1005 ,R/TP		
6	R601	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R602	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
6	R603	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R604	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R605	RES,CHIP	ERHY0000105	51 ohm,1/16W,F,1005,R/TP		
6	R606	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R607	RES,CHIP,MAKER	ERHZ0000404	1 Kohm,1/16W ,J ,1005 ,R/TP		
6	R608	RES,CHIP,MAKER	ERHZ0000437	2 Kohm,1/16W ,J ,1005 ,R/TP		
6	R609	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R610	RES,CHIP,MAKER	ERHZ0000493	51 Kohm,1/16W ,J ,1005 ,R/TP		
6	R611	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R713	RES,CHIP,MAKER	ERHZ0003901	.1 ohm,1/4W ,F ,2012 ,R/TP		
6	R714	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R715	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R729	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R730	RES,CHIP,MAKER	ERHZ0000701	0 ohm,1/10W ,J ,1608 ,R/TP		
6	S300	CONN,SOCKET	ENSY0018901	8 PIN,ETC , ,2.54 mm,Micro-SD, Reverse		
6	SW500	CONN,RF SWITCH	ENWY0002304	STRAIGHT ,SMD ,0.8 dB,MUSE MODEL		
6	U100	IC	EUSY0269702	BGA(14*14) ,355 PIN,R/TP ,1Gbit NAND+512Mbit DDR SDRAM, 3G Smart Phone for Open OS MAP		
6	U101	IC	EUSY0149402	SOT-553 ,5 PIN,R/TP ,Single 2 Input AND Gate		
6	U102	IC	EUSY0149402	SOT-553 ,5 PIN,R/TP ,Single 2 Input AND Gate		

Level	Location No	Part Name	Part Number	Spec	Color	Remark
6	U103	IC	EUSY0149402	SOT-553 ,5 PIN,R/TP ,Single 2 Input AND Gate		
6	U201	IC	EUSY0198601	SOT-666 ,6 PIN,R/TP ,Single SPDT Analog Switch		
6	U202	IC	EUSY0269401	I2C Dual Codec ,48 PIN,R/TP ,		
6	U204	IC	EUSY0263301	SC-88(2.0x2.1) ,6 PIN,R/TP ,Single SPDT Switch, Pb Free		
6	U206	IC	EUSY0317101	WQFN ,10 PIN,R/TP ,1.8*1.4*0.75		
6	U208	IC	EUSY0335701	QFN ,8 PIN,R/TP ,1.2W, Mono, Differencial Audio AMP		
6	U300	IC	EUSY0300101	WQFN ,10 PIN,R/TP ,Small package Dual SPDT analog Switch, PB-Free		
6	U302	IC	EUSY0064501	SOT-23-5 ,5 PIN,R/TP ,2.7V LDO REGULATOR,PBFREE		
6	U303	IC	EUSY0064501	SOT-23-5 ,5 PIN,R/TP ,2.7V LDO REGULATOR,PBFREE		
6	U304	IC	EUSY0241401	FLIP-CHIP 5 ,5 PIN,R/TP ,1-BIT DUAL SUP. BUS BUFFER LEVEL TRANS / 26 OHM SERIES ON A		
6	U307	IC	EUSY0223003	HVSOF5 ,5 PIN,R/TP ,150mA CMOS LDO WITH OUTPUT CONTROL / 3.3V		
6	U308	IC	EUSY0241401	FLIP-CHIP 5 ,5 PIN,R/TP ,1-BIT DUAL SUP. BUS BUFFER LEVEL TRANS / 26 OHM SERIES ON A		
6	U310	IC	EUSY0269501	TFBGA ,84 PIN,R/TP ,PMIC for Application Processor Engine of STM, Pb Free		
6	U311	IC	EUSY0162301	SOT-553 ,5 PIN,R/TP ,Single 2 Input OR Gate		
6	U312	IC	EUSY0149402	SOT-553 ,5 PIN,R/TP ,Single 2 Input AND Gate		
6	U313	IC	EUSY0241401	FLIP-CHIP 5 ,5 PIN,R/TP ,1-BIT DUAL SUP. BUS BUFFER LEVEL TRANS / 26 OHM SERIES ON A		
6	U400	IC	EUSY0064501	SOT-23-5 ,5 PIN,R/TP ,2.7V LDO REGULATOR,PBFREE		
6	U401	IC	EUSY0293401	VFBGA ,48 PIN,R/TP ,Bluetooth Single Chip(V2.0+EDR)		
6	U405	IC	EUSY0269201	Flip-Chip20 ,20 PIN,R/TP ,8 bit Level Translator, Pb Free		
6	U407	IC	EUSY0269201	Flip-Chip20 ,20 PIN,R/TP ,8 bit Level Translator, Pb Free		
6	U500	IC	EUSY0203802	QFN ,56 PIN,R/TP ,GSM/WCDMA TRANSMITTER & GSM RECEIVER		
6	U501	PAM	SMPY0013501	35 dBm,51 %, A, dBc, dB,7x7x1.1 ,SMD ,Polar Edge		
6	U502	VCO	EXSC0009201	MHz, PPM, pF,SMD ,5.5*4.8*1.5 ,824MHz ~ 915MHz, 1710MHz ~ 1910MHz, 14pin		
6	U503	FILTER,SAW	SFSY0023001	1950 MHz,2.0*1.4*0.8 ,SMD ,5pin, Unbal-Unbal, 50//50		
6	U504	IC	EUSY0280501	, PIN,R/TP ,		
6	U505	PAM	SMPY0013301	dBm,43 %, A,-40 dBc,26 dB,4x4x1.1 ,SMD ,2.1GHz, HSDPA		
6	U506	DUPLEXER,GSM	SDGY0000701	1950 MHz,2140 MHz,1.6 dB,1 dB,45 dB,51 dB,3.8*3.8*1.4 ,SMD ,WCDMA (FBAR)		
6	U507	COUPLER,RF DIRECTIONAL	SCDY0003402	-20 dB,-0.25 dB,-35 dB,1.0*0.58*0.35 ,SMD ,1850M ~ 1910M, 4pin, Pb Free		
6	U600	IC	EUSY0241701	BALL CSP ,409 PIN,R/TP ,WCDMA/GSM/GPRS/EDGE/HSDPA MODEM		
6	VA200	VARISTOR	SEVY0003801	18 V, ,SMD ,		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No	Part Name	Part Number	Spec	Color	Remark
6	VA201	VARISTOR	SEVY0003801	18 V, ,SMD ,		
6	VA208	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
6	VA209	VARISTOR	SEVY0003602	5.6 V, ,SMD ,1005, 60pF		
6	VA210	DIODE,TVS	EDTY0009401	VMN2 ,5 V,10 W,R/TP ,1.0*0.6*0.4 ,; , ,7.82V , , ,100mW ,[empty] ,[empty] ,2P ,1		
6	VA211	DIODE,TVS	EDTY0009401	VMN2 ,5 V,10 W,R/TP ,1.0*0.6*0.4 ,; , ,7.82V , , ,100mW ,[empty] ,[empty] ,2P ,1		
6	VA212	VARISTOR	SEVY0003801	18 V, ,SMD ,		
6	VA213	VARISTOR	SEVY0003801	18 V, ,SMD ,		
6	VA300	VARISTOR	SEVY0003801	18 V, ,SMD ,		
6	VA301	VARISTOR	SEVY0003801	18 V, ,SMD ,		
6	VA302	VARISTOR	SEVY0003801	18 V, ,SMD ,		
6	VA303	VARISTOR	SEVY0003901	5.5 V, ,SMD ,480pF, 1005		
6	X100	OSCILLATOR	EXSY0022201	19.2 MHz,20 PPM,15 pF,SMD ,3.2*2.5*1.0 ,1.71V ~ 1.89V, -20'C ~ +70'C ,; ,19.2MHz ,20PPM ,1.8V ,3.2 ,2.5 ,1.0 , ,SMD ,R/TP		
6	X400	OSCILLATOR	EXSY0022201	19.2 MHz,20 PPM,15 pF,SMD ,3.2*2.5*1.0 ,1.71V ~ 1.89V, -20'C ~ +70'C ,; ,19.2MHz ,20PPM ,1.8V ,3.2 ,2.5 ,1.0 , ,SMD ,R/TP		
6	X600	RESONATOR	EXRY0002401	48 MHz,.5 %,14 pF,SMD ,2.0*1.2*0.65 ,Outgoing Tolerance 0.2%, 0.05% at -40'C ~ +85C, Built-In Cap		
5	SAFD00	PCB ASSY,MAIN,SMT TOP	SAFD0083601			
6	C210	CAP,CERAMIC,CHIP	ECCH0007901	10 uF,4V ,M ,X5R ,TC ,1608 ,R/TP		
6	C211	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C212	CAP,CERAMIC,CHIP	ECCH0007901	10 uF,4V ,M ,X5R ,TC ,1608 ,R/TP		
6	C213	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C214	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C215	CAP,CERAMIC,CHIP	ECCH0007901	10 uF,4V ,M ,X5R ,TC ,1608 ,R/TP		
6	C216	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C217	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C218	CAP,CERAMIC,CHIP	ECCH0007901	10 uF,4V ,M ,X5R ,TC ,1608 ,R/TP		
6	C237	CAP,TANTAL,CHIP	ECTH0002201	10 uF,6.3V ,M ,STD ,1608 ,R/TP		
6	C238	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C239	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C308	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C309	CAP,CHIP,MAKER	ECZH0001421	2.2 uF,6.3V ,K ,X5R ,HD ,1608 ,R/TP		
6	C320	CAP,TANTAL,CHIP	ECTH0002002	33 uF,10V ,M ,L_ESR ,2012 ,R/TP ,; , ,[empty] ,[empty] , ,-55TO+125C , ,2.2X1.1X1.1MM ,[empty] ,[empty] ,[empty]		
6	C322	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C413	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C414	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		

Level	Location No	Part Name	Part Number	Spec	Color	Remark
6	C415	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C418	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C419	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C420	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C558	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C564	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C565	CAP,CERAMIC,CHIP	ECCH0000165	68 nF,6.3V,K,X5R,HD,1005,R/TP		
6	C569	CAP,CERAMIC,CHIP	ECCH0000112	15 pF,50V,J,NP0,TC,1005,R/TP		
6	C577	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C578	CAP,CHIP,MAKER	ECZH0000853	8.2 pF,50V ,D ,NP0 ,TC ,1005 ,R/TP		
6	C579	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C581	CAP,CHIP,MAKER	ECZH0000816	12 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C582	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C583	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C584	CAP,CHIP,MAKER	ECZH0000830	33 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C585	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C586	CAP,CERAMIC,CHIP	ECCH0000173	1.2 pF,16V ,B ,NP0 ,TC ,1005 ,R/TP		
6	C587	CAP,CHIP,MAKER	ECZH0001122	680 pF,50V ,K ,X7R ,HD ,1005 ,R/TP		
6	C588	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C589	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C590	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C591	CAP,CERAMIC,CHIP	ECCH0007801	4.7 uF,10V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C592	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C593	CAP,CERAMIC,CHIP	ECCH0007801	4.7 uF,10V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C594	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C595	CAP,CERAMIC,CHIP	ECCH0000110	10 pF,50V,D,NP0,TC,1005,R/TP		
6	C596	CAP,CHIP,MAKER	ECZH0000839	4.7 pF,50V ,C ,NP0 ,TC ,1005 ,R/TP		
6	C597	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C598	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C599	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		
6	C700	CAP,TANTAL,CHIP	ECTH0002002	33 uF,10V ,M ,L_ESR ,2012 ,R/TP ,; , ,[empty] ,[empty] , ,-55TO+125C , ,2.2X1.1X1.1MM ,[empty] ,[empty] ,[empty]		
6	C701	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C702	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C703	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C704	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C705	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No	Part Name	Part Number	Spec	Color	Remark
6	C706	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C707	CAP,CHIP,MAKER	ECZH0026301	4.7 uF,6.3V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C708	CAP,CHIP,MAKER	ECZH0026301	4.7 uF,6.3V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C709	CAP,CHIP,MAKER	ECZH0026301	4.7 uF,6.3V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C710	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C711	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C712	CAP,CHIP,MAKER	ECZH0001421	2.2 uF,6.3V ,K ,X5R ,HD ,1608 ,R/TP		
6	C713	CAP,CHIP,MAKER	ECZH0001421	2.2 uF,6.3V ,K ,X5R ,HD ,1608 ,R/TP		
6	C714	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C715	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C716	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C717	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C718	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C719	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C720	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C721	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C722	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C723	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C724	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C725	CAP,CERAMIC,CHIP	ECCH0000182	0.1 uF,10V ,K ,X5R ,HD ,1005 ,R/TP		
6	C726	CAP,CHIP,MAKER	ECZH0026301	4.7 uF,6.3V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C727	CAP,CERAMIC,CHIP	ECCH0000155	10 nF,16V,K,X7R,HD,1005,R/TP		
6	C728	CAP,CHIP,MAKER	ECZH0004402	0.1 uF,16V ,Z ,NP0 ,TC ,1005 ,R/TP		
6	C729	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C730	CAP,CHIP,MAKER	ECZH0026301	4.7 uF,6.3V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C731	CAP,CHIP,MAKER	ECZH0026301	4.7 uF,6.3V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C732	CAP,CERAMIC,CHIP	ECCH0004904	1 uF,6.3V ,K ,X5R ,TC ,1005 ,R/TP		
6	C733	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		
6	C734	CAP,CERAMIC,CHIP	ECCH0000113	18 pF,50V,J,NP0,TC,1005,R/TP		
6	C735	CAP,CHIP,MAKER	ECZH0026301	4.7 uF,6.3V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C736	CAP,CHIP,MAKER	ECZH0026301	4.7 uF,6.3V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C737	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C738	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C739	CAP,CHIP,MAKER	ECZH0001421	2.2 uF,6.3V ,K ,X5R ,HD ,1608 ,R/TP		
6	C760	CAP,CERAMIC,CHIP	ECCH0000143	1 nF,50V,K,X7R,HD,1005,R/TP		
6	C761	CAP,CHIP,MAKER	ECZH0026301	4.7 uF,6.3V ,Z ,Y5V ,HD ,1608 ,R/TP		
6	C800	CAP,CHIP,MAKER	ECZH0000813	100 pF,50V ,J ,NP0 ,TC ,1005 ,R/TP		

Level	Location No	Part Name	Part Number	Spec	Color	Remark
6	CN201	CONNECTOR,BOARD TO BOARD	ENBY0022801	70 PIN,0.4 mm,ETC , ,H=0.9, Socket		
6	D200	DIODE,TVS	EDTY0008602	SOD-323 ,13.3 V,400 W,R/TP ,PB-FREE		
6	D403	DIODE,TVS	EDTY0009401	VMN2 ,5 V,10 W,R/TP ,1.0*0.6*0.4 ,; , ,7.82V , , ,100mW ,[empty] ,[empty] ,2P ,1		
6	D404	DIODE,TVS	EDTY0009401	VMN2 ,5 V,10 W,R/TP ,1.0*0.6*0.4 ,; , ,7.82V , , ,100mW ,[empty] ,[empty] ,2P ,1		
6	D405	DIODE,TVS	EDTY0009401	VMN2 ,5 V,10 W,R/TP ,1.0*0.6*0.4 ,; , ,7.82V , , ,100mW ,[empty] ,[empty] ,2P ,1		
6	D701	DIODE,SWITCHING	EDSY0011901	EMD2 ,30 V,1 A,R/TP ,VF=1.5V(IF=200mA) , IR=30uA(VR=10V)		
6	FB204	FILTER,BEAD,CHIP	SFBH0000903	600 ohm,1005 ,		
6	FB205	FILTER,BEAD,CHIP	SFBH0000903	600 ohm,1005 ,		
6	FB206	FILTER,BEAD,CHIP	SFBH0000903	600 ohm,1005 ,		
6	FB207	FILTER,BEAD,CHIP	SFBH0000903	600 ohm,1005 ,		
6	FB221	FILTER,BEAD,CHIP	SFBH0009304	1500 ohm,1005 ,Chip bead ,; ,1500ohm ,1x0. ,[empty] ,R/TP		
6	FB222	FILTER,BEAD,CHIP	SFBH0000903	600 ohm,1005 ,		
6	FB223	FILTER,BEAD,CHIP	SFBH0009304	1500 ohm,1005 ,Chip bead ,; ,1500ohm ,1x0. ,[empty] ,R/TP		
6	FB224	FILTER,BEAD,CHIP	SFBH0009304	1500 ohm,1005 ,Chip bead ,; ,1500ohm ,1x0. ,[empty] ,R/TP		
6	FB225	FILTER,BEAD,CHIP	SFBH0009304	1500 ohm,1005 ,Chip bead ,; ,1500ohm ,1x0. ,[empty] ,R/TP		
6	FB227	FILTER,BEAD,CHIP	SFBH0009304	1500 ohm,1005 ,Chip bead ,; ,1500ohm ,1x0. ,[empty] ,R/TP		
6	FB229	FILTER,BEAD,CHIP	SFBH0009304	1500 ohm,1005 ,Chip bead ,; ,1500ohm ,1x0. ,[empty] ,R/TP		
6	FB230	FILTER,BEAD,CHIP	SFBH0009304	1500 ohm,1005 ,Chip bead ,; ,1500ohm ,1x0. ,[empty] ,R/TP		
6	FB231	FILTER,BEAD,CHIP	SFBH0009304	1500 ohm,1005 ,Chip bead ,; ,1500ohm ,1x0. ,[empty] ,R/TP		
6	FB232	FILTER,BEAD,CHIP	SFBH0009304	1500 ohm,1005 ,Chip bead ,; ,1500ohm ,1x0. ,[empty] ,R/TP		
6	FB233	FILTER,BEAD,CHIP	SFBH0009304	1500 ohm,1005 ,Chip bead ,; ,1500ohm ,1x0. ,[empty] ,R/TP		
6	FB234	FILTER,BEAD,CHIP	SFBH0009304	1500 ohm,1005 ,Chip bead ,; ,1500ohm ,1x0. ,[empty] ,R/TP		
6	FB235	FILTER,BEAD,CHIP	SFBH0009304	1500 ohm,1005 ,Chip bead ,; ,1500ohm ,1x0. ,[empty] ,R/TP		
6	FB236	FILTER,BEAD,CHIP	SFBH0009304	1500 ohm,1005 ,Chip bead ,; ,1500ohm ,1x0. ,[empty] ,R/TP		
6	FB237	FILTER,BEAD,CHIP	SFBH0009304	1500 ohm,1005 ,Chip bead ,; ,1500ohm ,1x0. ,[empty] ,R/TP		
6	FB238	FILTER,BEAD,CHIP	SFBH0009304	1500 ohm,1005 ,Chip bead ,; ,1500ohm ,1x0. ,[empty] ,R/TP		
6	FB239	FILTER,BEAD,CHIP	SFBH0009304	1500 ohm,1005 ,Chip bead ,; ,1500ohm ,1x0. ,[empty] ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No	Part Name	Part Number	Spec	Color	Remark
6	FB240	FILTER,BEAD,CHIP	SFBH0009304	1500 ohm,1005 ,Chip bead ,; ,1500ohm ,1x0. ,[empty] ,R/TP		
6	FB241	FILTER,BEAD,CHIP	SFBH0009304	1500 ohm,1005 ,Chip bead ,; ,1500ohm ,1x0. ,[empty] ,R/TP		
6	FB242	FILTER,BEAD,CHIP	SFBH0009304	1500 ohm,1005 ,Chip bead ,; ,1500ohm ,1x0. ,[empty] ,R/TP		
6	FB243	FILTER,BEAD,CHIP	SFBH0009304	1500 ohm,1005 ,Chip bead ,; ,1500ohm ,1x0. ,[empty] ,R/TP		
6	FB244	FILTER,BEAD,CHIP	SFBH0009304	1500 ohm,1005 ,Chip bead ,; ,1500ohm ,1x0. ,[empty] ,R/TP		
6	FL200	FILTER,EMI/POWER	SFEY0013601	SMD ,18 V,4ch. EMI_ESD Filter (50 Ohm, 7.5pF)		
6	FL201	FILTER,EMI/POWER	SFEY0013601	SMD ,18 V,4ch. EMI_ESD Filter (50 Ohm, 7.5pF)		
6	FL202	FILTER,EMI/POWER	SFEY0013601	SMD ,18 V,4ch. EMI_ESD Filter (50 Ohm, 7.5pF)		
6	FL203	FILTER,EMI/POWER	SFEY0013601	SMD ,18 V,4ch. EMI_ESD Filter (50 Ohm, 7.5pF)		
6	FL204	FILTER,EMI/POWER	SFEY0013201	SMD ,1608 ,EMI-ESD Filter, 4ch, 14V, 15pF, 100ohm		
6	FL205	FILTER,EMI/POWER	SFEY0013201	SMD ,1608 ,EMI-ESD Filter, 4ch, 14V, 15pF, 100ohm		
6	FL206	FILTER,EMI/POWER	SFEY0013601	SMD ,18 V,4ch. EMI_ESD Filter (50 Ohm, 7.5pF)		
6	FL207	FILTER,EMI/POWER	SFEY0013201	SMD ,1608 ,EMI-ESD Filter, 4ch, 14V, 15pF, 100ohm		
6	FL208	FILTER,EMI/POWER	SFEY0013201	SMD ,1608 ,EMI-ESD Filter, 4ch, 14V, 15pF, 100ohm		
6	FL501	FILTER,SAW	SFSY0025601	2140 MHz,2.0*1.4*0.68 ,SMD ,Balanced Output (100ohm)		
6	L528	INDUCTOR,CHIP	ELCH0005002	2.7 nH,S ,1005 ,R/TP ,		
6	L529	INDUCTOR,CHIP	ELCH0005006	33 nH,J ,1005 ,R/TP ,		
6	L530	INDUCTOR,CHIP	ELCH0005001	2.2 nH,S ,1005 ,R/TP ,		
6	L531	INDUCTOR,CHIP	ELCH0005002	2.7 nH,S ,1005 ,R/TP ,		
6	L532	INDUCTOR,CHIP	ELCH0005009	100 nH,J ,1005 ,R/TP ,		
6	L533	INDUCTOR,CHIP	ELCH0003815	2.7 nH,S ,1005 ,R/TP ,		
6	L700	INDUCTOR,SMD,POWER	ELCP0008001	4.7 uH,M ,2.5*2.0*1.0 ,R/TP ,		
6	L701	INDUCTOR,SMD,POWER	ELCP0008001	4.7 uH,M ,2.5*2.0*1.0 ,R/TP ,		
6	LD400	DIODE,LED,CHIP	EDLH0012501	Snow White ,1608 ,R/TP ,color concept		
6	LD401	DIODE,LED,CHIP	EDLH0012501	Snow White ,1608 ,R/TP ,color concept		
6	LD402	DIODE,LED,CHIP	EDLH0012501	Snow White ,1608 ,R/TP ,color concept		
6	LD403	DIODE,LED,CHIP	EDLH0012501	Snow White ,1608 ,R/TP ,color concept		
6	LD404	DIODE,LED,CHIP	EDLH0012501	Snow White ,1608 ,R/TP ,color concept		
6	LD405	DIODE,LED,CHIP	EDLH0012501	Snow White ,1608 ,R/TP ,color concept		
6	LD406	DIODE,LED,CHIP	EDLH0012501	Snow White ,1608 ,R/TP ,color concept		
6	LD407	DIODE,LED,CHIP	EDLH0012501	Snow White ,1608 ,R/TP ,color concept		
6	Q500	TR,BJT,ARRAY	EQBA0000301	SC-88A,0.15W,R/TP,NPN/PNP DUAL		
6	R207	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R216	RES,CHIP,MAKER	ERHZ0000407	1000 Kohm,1/16W ,J ,1005 ,R/TP		

Level	Location No	Part Name	Part Number	Spec	Color	Remark
6	R217	RES,CHIP,MAKER	ERHZ0000443	2200 ohm,1/16W ,J ,1005 ,R/TP		
6	R218	RES,CHIP,MAKER	ERHZ0000467	330 Kohm,1/16W ,J ,1005 ,R/TP		
6	R219	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R400	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R402	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R403	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R405	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R406	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R408	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R409	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R411	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R412	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R413	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R414	RES,CHIP,MAKER	ERHZ0000267	3300 ohm,1/16W ,F ,1005 ,R/TP		
6	R415	RES,CHIP,MAKER	ERHZ0000267	3300 ohm,1/16W ,F ,1005 ,R/TP		
6	R416	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R417	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R418	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R419	RES,CHIP,MAKER	ERHZ0000507	68 Kohm,1/16W ,J ,1005 ,R/TP		
6	R525	RES,CHIP	ERHY0003301	100 ohm,1/16W ,J ,1005 ,R/TP		
6	R526	RES,CHIP,MAKER	ERHZ0000318	80.6 Kohm,1/16W ,F ,1005 ,R/TP		
6	R527	THERMISTOR	SETY0000903	NTC ,68000 ohm,SMD ,+/- 10% / 2012 SIZE, Pb Free		
6	R528	RES,CHIP,MAKER	ERHZ0000288	470 Kohm,1/16W ,F ,1005 ,R/TP		
6	R529	RES,CHIP,MAKER	ERHZ0000502	6200 ohm,1/16W ,J ,1005 ,R/TP		
6	R532	RES,CHIP,MAKER	ERHZ0003203	11.3 Kohm,1/16W ,F ,1005 ,R/TP		
6	R533	RES,CHIP,MAKER	ERHZ0000490	51 ohm,1/16W ,J ,1005 ,R/TP		
6	R534	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R535	RES,CHIP,MAKER	ERHZ0000402	10 ohm,1/16W ,J ,1005 ,R/TP		
6	R701	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R702	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R703	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R704	RES,CHIP,MAKER	ERHZ0000487	470 Kohm,1/16W ,J ,1005 ,R/TP		
6	R705	RES,CHIP,MAKER	ERHZ0004201	121000 ohm,1/16W ,F ,1005 ,R/TP		
6	R706	RES,CHIP,MAKER	ERHZ0000405	10 Kohm,1/16W ,J ,1005 ,R/TP		
6	R707	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R708	RES,CHIP,MAKER	ERHZ0000490	51 ohm,1/16W ,J ,1005 ,R/TP		
6	R709	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		

11. EXPLODED VIEW & REPLACEMENT PART LIST

Level	Location No	Part Name	Part Number	Spec	Color	Remark
6	R710	RES,CHIP,MAKER	ERHZ0000486	47 Kohm,1/16W ,J ,1005 ,R/TP		
6	R711	RES,CHIP,MAKER	ERHZ0000406	100 Kohm,1/16W ,J ,1005 ,R/TP		
6	R712	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R716	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R718	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R719	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R720	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R721	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R722	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R723	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R724	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R725	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R726	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R727	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	R728	RES,CHIP,MAKER	ERHZ0000401	0 ohm,1/16W ,J ,1005 ,R/TP		
6	RA400	RES,ARRAY,R	ERNR0000404	100 Kohm,100 Kohm,8 PIN,J ,1/16W ,SMD ,R/TP		
6	SPFY01	PCB,MAIN	SPFY0108901	FR-4 ,1 mm,STAGGERED-10 ,IVH(3-8), JOY		
6	U200	IC	EUSY0317101	WQFN ,10 PIN,R/TP ,1.8*1.4*0.75		
6	U203	IC	EUSY0250501	SC70 ,5 PIN,R/TP ,Comparator, pin compatible to EUSY0077701		
6	U205	FILTER,EMI/POWER	SFEY0006501	SMD ,3 TERMINAL EMI FILTER		
6	U207	IC	EUSY0333701	TLLGA ,8 PIN,R/TP ,OVP		
6	U301	IC	EUSY0223006	HVSOF5 ,5 PIN,R/TP ,1.8V ,150mA LDO		
6	U306	IC	EUSY0232802	sot 23-5 ,5 PIN,R/TP ,2.8V,150mA LDO		
6	U402	IC	EUSY0200301	Leadless chip ,6 PIN,R/TP ,Hall S/W, Pb Free		
6	U403	IC	EUSY0254201	DFN ,12 PIN,R/TP ,Dual SPDT Analog Switch(Pb Free)		
6	U404	IC	EUSY0270601	Microarray ,49 PIN,R/TP ,Key Scan Controller(up to 72 keys), Pb Free		
6	U406	IC	EUSY0317101	WQFN ,10 PIN,R/TP ,1.8*1.4*0.75		
6	U508	IC	EUSY0246002	QFN ,48 PIN,R/TP ,UMTS-1900/-2100 and GPS RF Receiver IC		
6	U700	IC	EUSY0306301	BCCS ,84 PIN,R/TP ,PMIC(MSMC 1.375V) (Rev.M), Pb Free		
6	U701	IC	EUSY0297301	11*14*1.2 ,225 PIN,R/TP ,NAND(90nm), DRAM(90nm)		
6	VA202	VARISTOR	SEVY0004001	18 V, ,SMD ,3pF, 1005		
6	VA203	VARISTOR	SEVY0004001	18 V, ,SMD ,3pF, 1005		
6	VA204	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
6	VA205	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
6	VA206	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		

Level	Location No	Part Name	Part Number	Spec	Color	Remark
6	VA207	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
6	VA400	VARISTOR	SEVY0000702	14 V,10% ,SMD ,		
6	VA401	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
6	VA402	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
6	VA403	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
6	VA404	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
6	VA405	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
6	VA406	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
6	VA407	VARISTOR	SEVY0001001	14 V, ,SMD ,50pF, 1005		
6	X200	OSCILLATOR	EXSY0022103	27 MHz,50 PPM,15 pF,SMD ,3.2*2.5*1.0 ,2.3V ~ 3.2V, -20'C ~ +70'C ,; ,27MHz ,50PPM ,2.8V ,3.2 ,2.5 ,1.0 , ,SMD ,R/TP		
6	X500	VCTCXO	EXSK0007801	19.2 MHz,2 PPM,10 pF,SMD ,3.3*2.5*1.0 ,2ppm at -30~+85, AFC 0.4V~2.4V, 2.8V ,; ,19.2MHz ,2PPM ,2.8V ,3.3mm ,2.5mm ,1.0mm , ,SMD ,R/TP		
6	X700	X-TAL	EXXY0018701	32.768 KHz,20 PPM,12.5 pF,70 Kohm,SMD ,3.2*1.5*0.9 ,		
6	ZD1	DIODE,TVS	EDTY0009401	VMN2 ,5 V,10 W,R/TP ,1.0*0.6*0.4 ,; , ,7.82V , , ,100mW ,[empty] ,[empty] ,2P ,1		

11.3 Accessory

Note: This Chapter is used for reference, Part order is ordered by SBOM standard on GCSC

Level	Location No	Part Name	Part Number	Spec	Color	Remark
3	ADEY00	DATA KIT	ADEY0009701	KS10 CD Ass'y for Italy	Without Color	
4	MCHZ00	COMPACT DISK	MCHZ0036101	COMPLEX, (empty), , , , ,	SILVER SNOW	
4	MEAY00	ENVELOPE	MEAY0000401	PRINTING, (empty), , , , ,	Without Color	
3	SBPP00	BATTERY PACK,LI-POLYMER	SBPP0021101	3.7 V,950 mAh,1 CELL,PRISMATIC ,KS10 ITAML Batt, Europe Label, Pb-Free ,; ,3.7 ,950 ,0.2C ,PRISMATIC ,59x38x37 , ,BLACK ,Hardpack ,Europe Label	Metal Black	
3	SDGY00	DATA CABLE	SGDY0010901	LG-US03K ,18pin USB DataCable		
3	SGEY00	EAR PHONE/EAR MIKE SET	SGEY0005516	GSM FORDER ,KG320(C2EAR PHONE)		
3	SSAD00	ADAPTOR,AC-DC	SSAD0021002	100-240V ,5060 Hz,4.8 V,0.9 A,CB & CE ,18pin plug		
□□		ADAPTOR,AC-DC	SSAD0021001	100-240V ,5060 Hz,4.8 V,0.9 A,CB & CE ,18pin plug		
□□		ADAPTOR,AC-DC	SSAD0021004	100-240V ,5060 Hz,4.8 V,0.9 A,CB & CE ,18pin plug		
□□		ADAPTOR,AC-DC	SSAD0021005	100-240V ,5060 Hz,4.8 V,0.9 A,CB & CE ,18pin plug		
□□		ADAPTOR,AC-DC	SSAD0021006	100-240V ,5060 Hz,4.8 V,0.9 A,CB & CE ,18pin plug		
□□		ADAPTOR,AC-DC	SSAD0021008	100-240V ,5060 Hz,4.8 V,0.9 A,CE&CB ,18pin Plug ,; , , , , , ,[empty] ,I/O CONNECTOR ,		

Note